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# AUTOMOTIVE INDUSTRIES

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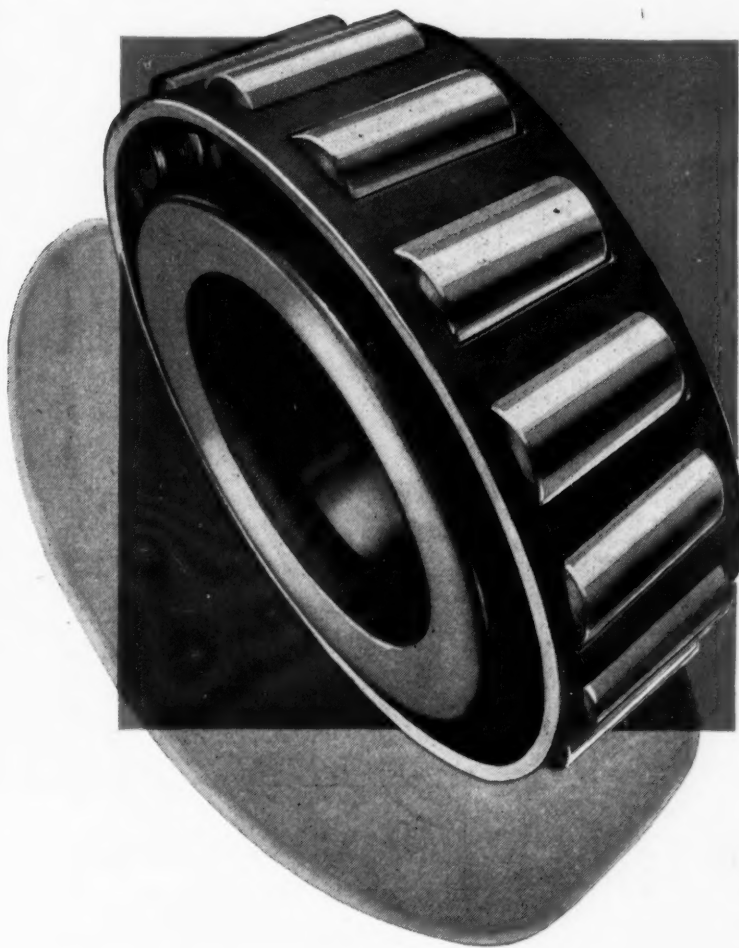
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# AUTOMOTIVE INDUSTRIES

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# 1 9 2 5

## Looks Like a Good Year But Output Records Are Not Generally Expected

By Norman G. Shidle

**P**RACTICALLY everybody in the automotive industry seems to be convinced that 1925 is going to be a mighty good year. They cite general business conditions, normal dealer stocks and a trend toward conservative action among car manufacturers as factors highly favorable to profitable business next year. But there is a very strong undercurrent of conservatism evident in the minds of many executives when details of 1925 prospects come up for discussion. They think that the year will be profitable if merchandising methods are improved and if production schedules are set on a conservative basis.

Estimates of 1925 motor vehicle production range all the way from 2,900,000 to 5,000,000. The general feeling is that car and truck production probably will run about the same as in 1923 with a tendency to be slightly higher. Some very careful students of the industry, however, are among those who think the output total will drop below that of 1924.

Very few important executives are taking seriously any estimates exceeding 4,000,000. It is admitted that these optimists *may* be right, but, as one executive puts it, "if they are we can count such extra production as velvet;

it's a lot easier to step up our schedules than it is to cut them down."

The parts manufacturers as a rule seem to be guessing more conservatively on 1925 car production than are the car builders themselves. Most of the parts people feel that they will make more money next year by playing the game safe than by letting their hopes run away with their better judgment.

**M**ANY executives in the parts field are looking for a further reduction in the number of passenger car builders next year and for this reason expect credit departments to play an important part in their profit-making efforts.

The sales manager of one big parts company is very optimistic about 1925 from the standpoint of both profits and production. He feels that the well-equipped parts maker must be on the job and ready to meet conditions as he finds them; that parts manufacturers will have to find some way of cutting costs so as to meet conditions created by reductions in car prices. He points out that very remarkable things can be done in this respect even in a plant which always has

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### *1925 Production will be—?*

Consensus of opinion would put figures somewhere around 3,750,000 cars and trucks.

Many executives believe output will not reach this total, while some estimates run over 4,000,000.

This article tells why some people are guessing high and others low.

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been considered quite efficient in every way.

Car manufacturers look forward to 1925 with optimism and earnestness. The optimism is founded on the improved conditions of the last few months and the prospects for continuance of the favorable trend. The earnestness is generated by a clear knowledge that several very definite problems face the industry and that no amount of general prosperity can put real profits into the car builders' pockets until those problems have been met and handled without gloves.

#### Why the Price Cuts?

The imposing list of price reductions which are coming through at present naturally have an important bearing on any estimates of 1925 from the standpoint of profits. Most executives are inclined to face the facts. In doing so, many of them are saying, "I don't see where the price cuts are coming from. There isn't anything in the materials or labor market to justify reductions; production costs haven't been reduced to any great extent recently and heaven knows marketing costs aren't falling so you can notice it. Looks as though the cuts are being made chiefly in an attempt to get ahead of the other fellow for the time being or to meet some specially severe competition."

Several executives of importance think that the price cuts will result simply in a stabilization of prices on a lower level without any definite sales advantage having resulted for any one of the companies involved. They believe, moreover, that the lower level established will not have an appreciable effect on the 1925 production total, pointing to the fact that the used car situation rather than new car prices will be the thing which will determine how many automobiles can be built and sold next year.

Nearly everyone is agreed that the day of forcing cars on dealers has passed. Even those companies which have made particularly good production records in the last few months have done so because their dealers were able to dispose of the cars about as fast as they were built. The head of one such company is authority for the statement that his dealers' stocks are below rather than above normal at this time, despite unfounded rumors to the contrary.

#### Forcing Cars Stopped

One factory merchandising man, for example, said very emphatically the other day that overloading would have to stop and that, so far as some of the biggest manufacturing units in the industry were concerned, he was certain that it had stopped—and that it would not be resumed. Used cars must be moved if new cars are to be sold, he pointed out, and the dealers must be given every reasonable opportunity to move them.

It is this basic necessity that makes this particular executive predict 1925 production around 3,700,000, despite his belief that general business conditions will be considerably better than in 1924.

Much speculation is going the rounds as to the effect of the many new coaches on

1925 production. One man who is particularly well qualified to speak on this topic says that he thinks they will tend to boost production a little, but does not believe their influence will be sufficient to make any major difference in the total output for next year.

A successful parts maker, who keeps very close track of the passenger car business in an effort to operate his own plant intelligently, agrees with the car executive quoted above as regards forcing cars on dealers. "Car manufacturers will have to lay off dealers from now on," he says. "It isn't a question of what they want to do; they just can't force cars on the retailers any more. The dealers won't stand it and neither will the dealers' bankers. The car makers might as well face the facts as they are."

"They can't stock the dealers up and then cut the price of the car, either. It isn't fair and it doesn't pay in the long run. A little more of the golden rule in the automobile business would help its profits a whole lot."

#### Sees Industry Healthy Next Year

This executive is extremely optimistic, however, about the future of the industry and about the prospects for 1925. He doesn't expect production to go much ahead of 1924, but he does think that the whole industry, from the parts makers clear through to the smallest dealer, is going to be in a healthier and sounder condition.

Pessimists as regards 1925 exist, of course, and their views are worth consideration as tempering the unbounded enthusiasm of some of those who are too optimistic.

A well-known automotive figure who doesn't look for much improvement next year says in effect that "1925 will be harder for the automotive industry than was 1924."

"General business will be good, but lack of proper merchandising methods and the seriousness of the used car situation will hinder automobile sales very much."

This man thinks that production isn't likely to run over 3,000,000 next year and that if it does profits will suffer.

His views do not coincide, however, with those of a majority of important executives in the industry.

It has become commonplace to say that the automotive industry has entered a marketing era. That happened a good while ago. But only recently has anybody really begun to do anything about it. There isn't any question but that next year will see more honest effort put into practical dealer education work than any three years previously. Ideas are changing very rapidly, too, as to what constitutes dealer education.

It is interesting to note that two of the best known authorities on marketing methods agree exactly as to the two most important things that the manufacturer should do for the dealer. Their ideas were expressed informally without knowledge in either case of what the other had said.

Both believe that the first thing for the manufacturer to do is to refrain from forcing cars on dealers. The next move is to provide assistance for dealers

## 1925

### *From an Automotive Viewpoint*

#### Favorable Aspects

General business will be better than in 1924.

Sentiment against overloading dealers is growing.

Increase in practical dealer merchandising help probable.

Car manufacturers are operating on more conservative principles than ever before.

#### Unfavorable Aspects

Used cars are not moving rapidly and will tend to hold down sales and production particularly of middle and low priced cars.

Production capacity in both car and parts fields will be in excess of 1925 demand.

Price cuts, due to competition rather than basic economic conditions, may eat into profits.

through a corps of factory traveling men who really know something about selling cars at retail, who are intelligent enough to give the retailer practical help, and who will be expected to spend several days rather than several hours with each dealer.

Expense! That will be the first cry raised against such procedure. These men recognize that fact. But, as one of them points out, the cars must be sold and that is the only way to sell them. "We can cut out some of the fancy direct by mail literature, costly pamphlets, and some of the millions of dollars spent in consumer advertising and use it to produce sales more directly through practical, useful dealer education work."

#### Worth Thinking About

Of course, there are hundreds in the industry who don't agree with these two men, but their ideas in other phases of automotive merchandising have worked out so well as to render their opinion on this subject worth honest consideration.

The relation of the parts maker to the car manufacturer is one phase of 1925 automotive business that is coming in for a lot of discussion right now.

A decided difference of opinion exists as to whether the parts maker is going to be in any better position than in the past as regards stability of production and foreknowledge of release dates.

One cheerful pessimist thinks things will be better next year because they couldn't be any worse.

Another parts man sees better cooperation growing apace, while another thinks it is coming slowly but that in the meantime the parts maker will have to make his own studies and estimates of the situation as a basis of buying materials and scheduling production.

One car maker points out that the balance sheets of some of the parts makers for 1924 compare very favorably with those of the more important car companies and is inclined to think that the parts busi-

ness hasn't been so bad from the profit standpoint as some people have made out. Profits have been quite low, however, in many cases and there is every reason to believe that the costs for the whole industry could be cut materially if parts makers were not so frequently called upon to make sudden stops and starts in their production schedules.

Guessing is dangerous business. Fewer executives are publishing predictions than ever before—which indicates a favorable trend toward conservatism and toward facing the facts.

A guess as regards 1925 production, based on the ideas of ten or fifteen leading executives representing all parts of the automotive industry, would run somewhere around 3,750,000 cars and trucks.

Never before, however, does there seem to have been such a wide divergence of opinion among men having before them about the same facts.

It is generally agreed, however, that 1925 will be a good year if conservative thought dominates production schedules, if better merchandising methods are installed, and if more attention is given to coordination of production with sales.

Distribution of replacement parts still is the source of a lot of argument among both car and parts manufacturers. No means has been devised yet of settling the question to the satisfaction of all concerned. The difficulty lies in the fact that profits now accrue to several competing agencies and that each of them naturally desires to increase rather than to give up its share of the proceeds. The car manufacturer has, in addition, the basic responsibility for taking care of the car which he builds. It is for this reason primarily that most vehicle makers feel that they must expand their parts distribution as much as possible. Yet their task is a hard one because the independent service station does service a lot of cars and often can buy a single substitute part which will fit in many cars.

# Is Any Progress Being Made on Balloon Tire Standardization?

*Trend is toward fewer sizes, wider rims and treads designed to equalize wear over entire width. Requirements of twenty-eight of fifty-five manufacturers limited to five tire sizes.*

By Herbert Chase

**M**ATERIAL changes have taken place in the balloon tire situation in the last six months. For example:

1. Definite steps have been taken toward reducing the number of sizes used as original equipment, even though the number of sizes approved by the Rubber Association has increased.

2. There has been a swing toward wider rims and two new sizes, 5 and 6 in., have been approved by the Tire and Rim Association.

3. Rims of 20 and 21 in. diameter enjoy about equal favor, with only six makes of cars are employing 22 in. rims, according to a recent survey.

4. Treads have undergone changes in design calculated to equalize wear over their entire width.

5. There is still considerable difference of opinion regarding the suitability of four-ply balloons, especially in larger sizes.

6. Experiments with drop center rims are proceeding and this type of rim is regarded with increased favor by some prominent car and tire makers. Six sizes have been adopted as a tentative experimental standard by the Tire and Rim Association.

7. It appears to be fairly well established that ordinary straight side tires without a catch bead can be used safely on drop center rims.

These are some of the high spots of the present situation, but naturally they do not tell the whole story.

Although balloons are accepted as an established factor in the passenger car field, they continue to present numerous problems. In fact, the situation is in a state of flux, with the possibility of more or less radical changes yet to come.

## Are Car Manufacturers Responsible?

There probably is considerable truth in the assertion made by tire men generally that the great number of balloon tire sizes now on the market is due in large part to demands of car manufacturers, but a step in the direction of a decidedly smaller number of sizes has been initiated by the balloon tire committee of the National Automobile Chamber of Commerce. This committee asked the Rubber Association to recommend an ideal program of preferred sizes toward which the passenger car and tire industries might work in the interest of economy in cost of production and service and yet provide adequate equipment for cars now in production.

In response to this request, nine important companies in the Rubber Association recommended the list of sizes, load per tire and inflation pressures shown in the accompanying Table 1. With this table is given a list of the seven sizes recently adopted by the Society of Motor Manufacturers and Traders of Great Britain and the 26 sizes of balloon tires now manufactured in the United States. Of the latter, eight sizes are intended for replace-

ment on rim diameters used with high pressure tires, while the remainder are for use on 20, 21 and 22 in. rim diameters.

It should be noted that the 21 x 4.40 clincher, 30 x 4.75, 33 x 6 and 33 x 6.75 are sizes which have not appeared in lists heretofore published in these columns, these being sizes approved by the Rubber Association since our last general survey of the balloon tire situation. Furthermore, the last three of these four sizes are among the five which the Rubber Association recommends to the N. A. C. C.

Another significant point is that the five sizes proposed for standardization by the Rubber Association all are for 21 in. rims.

## Five Sizes Recommended

The N. A. C. C. has been circularizing its members to learn whether they can use eventually one of the five recommended sizes or whether they prefer that others be added. Official returns in this regard are not yet available, but it is understood that a large majority of concerns have advised that the five-size list meets their requirements. Some wanted other sizes added but said they would abide by the decision of the majority, while the remainder were quite insistent upon additional sizes.

The Firestone Tire & Rubber Co., which is not a member of the Rubber Association, is in favor of a program which would standardize the 4.40, 4.75, 5.25, 5.77, 6.20, 6.75 and 7.30 in. sections, a total of seven sections, only four of which are contained in the Rubber Association's recommended list. Firestone contends that the seven sections would take care of automobile manufacturers' requirements, which always have made necessary half-inch steps between sizes.

An analysis of the present requirements of passenger car manufacturers in respect to balloon tire sizes as contained in the Table 2 from a recent paper by James E. Hale of Firestone, shows that out of a total of 55 car makers listed 28 already confine their requirements to the five sizes which the Rubber Association recommends. These include such important makers as Cadillac, Cleveland, Chandler, Essex, Gray, Franklin, Hupp, Jewett, Jordan, Lincoln, Nash, Paige, Reo, Rollin and Willys-Overland. In addition, Auburn, Gardner, Flint, Moon, Marmon, Peerless, Studebaker and Velie, among others, use also one or more of the five sizes, but also require some sizes outside the list of five.

Fourteen makers, namely, Buick, Chrysler, Cole, Cunningham, Dodge, Durant, Hudson, Maxwell, Oakland, Olds, Packard, Pierce-Arrow, Rickenbacker and Star, use exclusively, so far as balloon tire requirements are concerned, sizes not in the list of five recommended, while 27 use some sizes outside this list as well as some sizes in it.

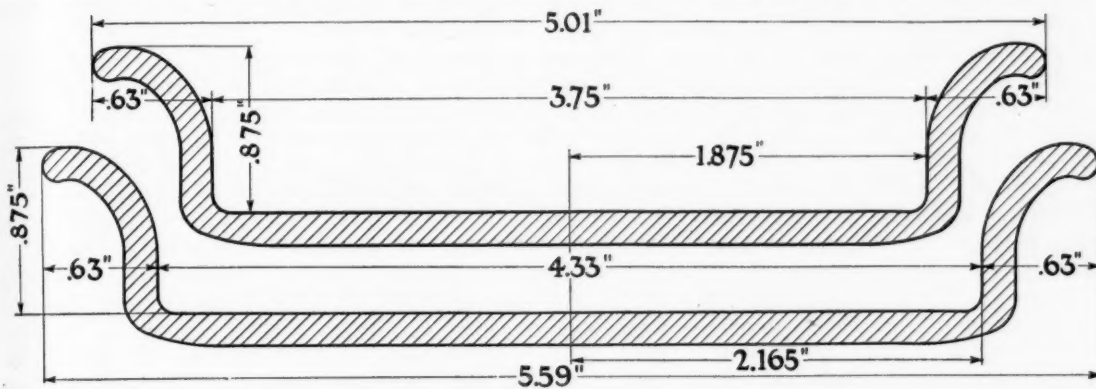
There are several reasons for "nonconformity," if it

may be so termed. One is the fact that the makers now use the 34 x 7.30 size, which is regarded as a "dead" size by some tire makers. When the 6.75 in. size is used on a 5 or 6 in. rim, as it is by Cadillac, Lincoln and Peerless, it has approximately the same air and carrying capacity as the 7.30 on a 4½ in. rim and, some say, greater lateral stability.

Some 25 "nonconformists" are included in the list using tires of 6.20 in. sectional diameter. All but three of these use a 20 in. rim. To some it seems to be a fair presumption that most if not all of these cars could use either a 6 or a 6.75 in. tire on a 21 in. rim without serious difficulty. Most of the other "nonconformists" use either 4.95, 5.25 or 5.77 in. tires on 20 or 22 in. rims, and here,

specified by the Rubber Association for the particular size of tire employed. Just why this is done is not evident in all cases, but of course the narrower rim is lighter and cheaper and affords slightly more clearance, all of which are good qualities, providing performance is not affected adversely.

Some tire engineers contend, however, that a wider rim makes for greater lateral stability and may result in a decreased tendency to shimmy. There appears to be sound reasoning back of this contention and some believe it has resulted already in a tendency to use wider rims. In any case two concerns, Nash and Studebaker, are using rims even wider than those specified by the Rubber Association, while the Rubber Association is recommending wider



Two new (5 and 6 in.) sizes of rims for balloon tires adopted by Tire and Rim Association. Scale, full size

apparently, we come to a somewhat serious rub, although again the presumption is that a tire of the next larger or smaller section on a 21 in. rim could be used with perhaps some sacrifice such as generally is involved when a change in equipment is effected.

In this case the "rub" involves the vexing problem of wheel size, which is determined partly by the ground clearance required, partly by appearance and partly by other factors. Cars which are low hung and seat the passengers quite close to the ground give a pleasing appearance as judged by present standards. This fact has brought the small wheel into popularity and has resulted in cars with less ground clearance than formerly was common.

So long as cars are used on good hard roads small ground clearances are permissible, but in the case of cars intended for a very wide distribution where all sorts of road conditions must be met, a large road clearance is an important factor. One important manufacturer of cars which are in the price class next above Ford is known to have spent large sums in making changes for the purpose of increasing ground clearance in order not to be at a disadvantage to Ford in this respect. Naturally this maker is not disposed to sacrifice the increased clearance by going to a smaller wheel size. This maker is not fitting balloon tires at the present time but may do so in the near future.

#### Ground Clearance

Buick, Oakland, Oldsmobile, Rickenbacker, Pierce-Arrow and Apperson are understood to be adhering to the 22 in. rim chiefly because of the greater ground clearance it affords as compared to 20 and 21 in. rims. In the Hale table of balloon tire requirements, 33 makes or models are listed as using 20 in. rims, 29 as using 21 in. rims and 6 as using 22 in. Whether another six months will show a swing to 21 in. diameter remains to be seen, but this is considered likely by some competent observers, especially in view of the Rubber Association recommendations.

Analysis of the Hale table from another standpoint shows that a large number of manufacturers, among them Dodge, Chrysler, Maxwell, Chandler, Moon, Reo, Lincoln and Pierce-Arrow, are using rims narrower than those

rims in some cases, notably on the 6.75 in. tires, where a 6 in. rim is specified as against a 5 in. formerly specified for a 7.30 in. tire section, and on the 6.00 tire where a 5 in. rim is called for when only a 4½ in. rim formerly was specified for 6.20 in. tires.

#### Wider Rims

Another reason for wider rims lies in the fact that spreading the beads increases the sectional width of the tire and thus increases its safe carrying capacity. In some cases advantage is taken of this fact to make a tire of given size adequate for its load whereas it would not be quite wide enough on a narrow rim. In other words, the rim width is increased instead of going to a tire of larger nominal section.

In an accompanying cut are given full size sections of 5 and 6 in. nominal size rims of conventional type which are new sizes recently standardized by the Tire and Rim Association. These new rims, designed especially for balloon tires on passenger cars, have the same actual width between flanges as the 5 and 6 in. rims for pneumatic truck tires, but the flanges are considerably lower and the overall width is slightly less.

One difficulty encountered with balloon tires has been the comparatively rapid tread wear, especially on front wheels. This has resulted in changes in tread design, notably a thickening of the rubber near the outer edges of the tread. A development of the United States Tire Co. in this respect is termed the "semi-flat" tread, which is said to be considerably more durable than the tread formerly employed.

A somewhat conservative view of the present balloon tire situation held by an engineer with one prominent car manufacturer runs somewhat as follows: The balloon tire came into being almost entirely because of claims that it provided far easier riding qualities. This it does in some cases and under some conditions, but under other conditions its use results in hard riding and shimmy, while steering when parking becomes very difficult and liability to puncture is increased, at least with four-ply construction. If six plies are employed, a higher pressure must be used, nearly as high a pressure as some use with so-

called high pressure tires, without undue sacrifice in mileage. These high pressure tires, however, are not subject to the disadvantages of the balloon tire and give the user good riding qualities and practically no trouble.

If this view were accepted generally, it seems likely that the four-ply balloon, at least in the larger sizes, would be superseded by a tire with six or more plies and perhaps a somewhat smaller section, possibly a compromise between the present six-ply balloon and its corresponding size of high pressure tire. Such a tire would give reasonably easy riding and perhaps be free from the hard steering, bouncing and shimmy-inducing difficulties which have caused some car makers no end of trouble.

As indicated above, however, this view is very much on the conservative side and probably does not have so many adherents as that which holds that the "true" balloon tire, even in the four-ply construction, is here to stay, that the user already has been sold on its merits and that its success is sufficiently well established already to guarantee its continued use in the future.

#### Four Versus Six Ply Tires

At least one or two well-known concerns who manufacture large numbers of balloon tires are reported to have given up the four-ply entirely, but most concerns who do equipment business make four as well as six-ply casings and are disposed to furnish what the car maker demands in this regard. Although the weight of plies used varies, four-ply tires naturally are considerably cheaper than six-ply so that there is considerable incentive to use four-ply in original equipment.

This is said by some to suit the tire makers well enough, as it is known that they sell to car manufacturers on an entirely narrow margin and may be expected to do a large replacement business if it is true, as contended, that four-ply casings do not give as long a life as six-ply.

On the other hand, some of the largest tire makers assert that four-ply balloons are giving an excellent account of themselves and that there is no just ground for complaint in respect to serviceability if reasonable care is given the tire and it is not run under-inflated. Firestone, a strong advocate of four-ply construction, maintains that this number of plies not only is sufficient, but that punctures with it are no more frequent than with high pressure tires. This is proved, it is contended, by records covering millions of miles on numerous cars used in taxi service.

#### Question of Punctures

Other makers admit that a four-ply tire punctures more easily than a six-ply but still are strongly of the opinion that the four-ply is satisfactory in this respect as in other particulars. One such maker points to the fact that Dodge, which formerly insisted on six-ply balloons and later specified five plies, now is in the market for four-ply balloon tires.

It begins to look as if the whole matter will be decided on a price basis, the car maker furnishing the cheapest balloon which will give seasonable service and the tire manufacturer striving to give the best he can in four-ply construction. In the larger sizes, however, it is quite likely that six plies will be used, since it appears that the most serious difficulties with four-ply construction have been encountered with large cars which have experimented with these sizes in four-ply construction.

According to the accompanying list compiled by James E. Hale of Firestone, Auburn, Apperson, Chandler, Chrysler, Cadillac, Lincoln and Pierce-Arrow are the only American car makers whose balloon tire requirements are for six-ply only. Buick and Peerless use some four and some six-ply. All others using balloons as original equipment specify four-ply.

There is considerable interest in drop center rims and automobile, tire, wheel and rim manufacturers have been doing experimental work intended to determine how satisfactory such rims will prove for use on American passenger cars. As indicated in earlier articles on this subject in these columns, the drop center rim has been revived by Dunlop in England and is beginning to see considerable use there.

#### Drop Base Rims

Some prominent engineers are known to be pretty well sold on its merits, but whether its advantages will outweigh its disadvantages remains to be seen. Many months are expected to elapse before the results of tests now in progress will be sufficiently conclusive to determine the future of this type of rim.

Sufficient interest has been evinced in the subject to warrant adoption of a tentative "experimental" standard for such rims on the part of the Tire and Rim Association. The standard covers the set of drop center rim sizes shown in an accompanying cut. It will be seen that these rim sections differ in several respects from those recommended by Colin Macbeth of the British Dunlop Co. in AUTOMOTIVE INDUSTRIES for Nov. 8, 1923.

In all save the largest size the standard sizes apply to 21 in. seat diameter and, so long as the internal rim contour is maintained, the flange can be turned inwardly, as proposed by Dunlop, or made after the fashion of the flange on ordinary straight side rims. There has been some controversy in respect to the width of the well, the wider well finally being accepted because of the greater facility with which tires can be taken off and put on. In the three smallest sizes the width between flanges is greater than that between the flanges of standard straight side rims, but in the 33 x 6 in. size it is the same width and in the 33 x 6.75 in. size it is slightly narrower than for the corresponding size of ordinary straight side rim.

#### Manufacturers Not Using Catch Bead

Those who are familiar with the construction of tire recommended and used by the British Dunlop Co. a year ago will recall that it employed a catch bead, formed on the outer wall of the casing just above the bead proper, and intended to prevent the tire coming off the rim in case of sudden deflation and also to form a cushion to prevent cutting the tube if the tire is run flat. This catch bead is said to be unnecessary and never has been used or advocated by American manufacturers.

Naturally American makers are desirous of avoiding a construction which would involve changes in mold equipment or any increase in the types of tire to be carried in stock by dealers. For this reason, those interested in the drop center rim have been experimenting to determine whether the present straight side tire will come off the rim in case of sudden deflation, as this seemed to be the chief reason for the supposition that a tire without catch bead or other provision for preventing it from leaving the rim would not be satisfactory on a drop center rim. These tests are said to indicate that an ordinary straight side tire can be used safely on a drop center rim. If this proves to be true, it will remove one of the chief obstacles to its use.

An engineer with a prominent wheel manufacturer, who is reported to see little advantage in the drop base construction, although his company is prepared to make it if car makers demand it, summarizes the situation somewhat as follows:

In support of the drop center rim the following advantages have been advanced: less cost for tire and tube, rim and wheel; less weight; easier handling—presumably in taking off and putting on tires; no flap required; sim-

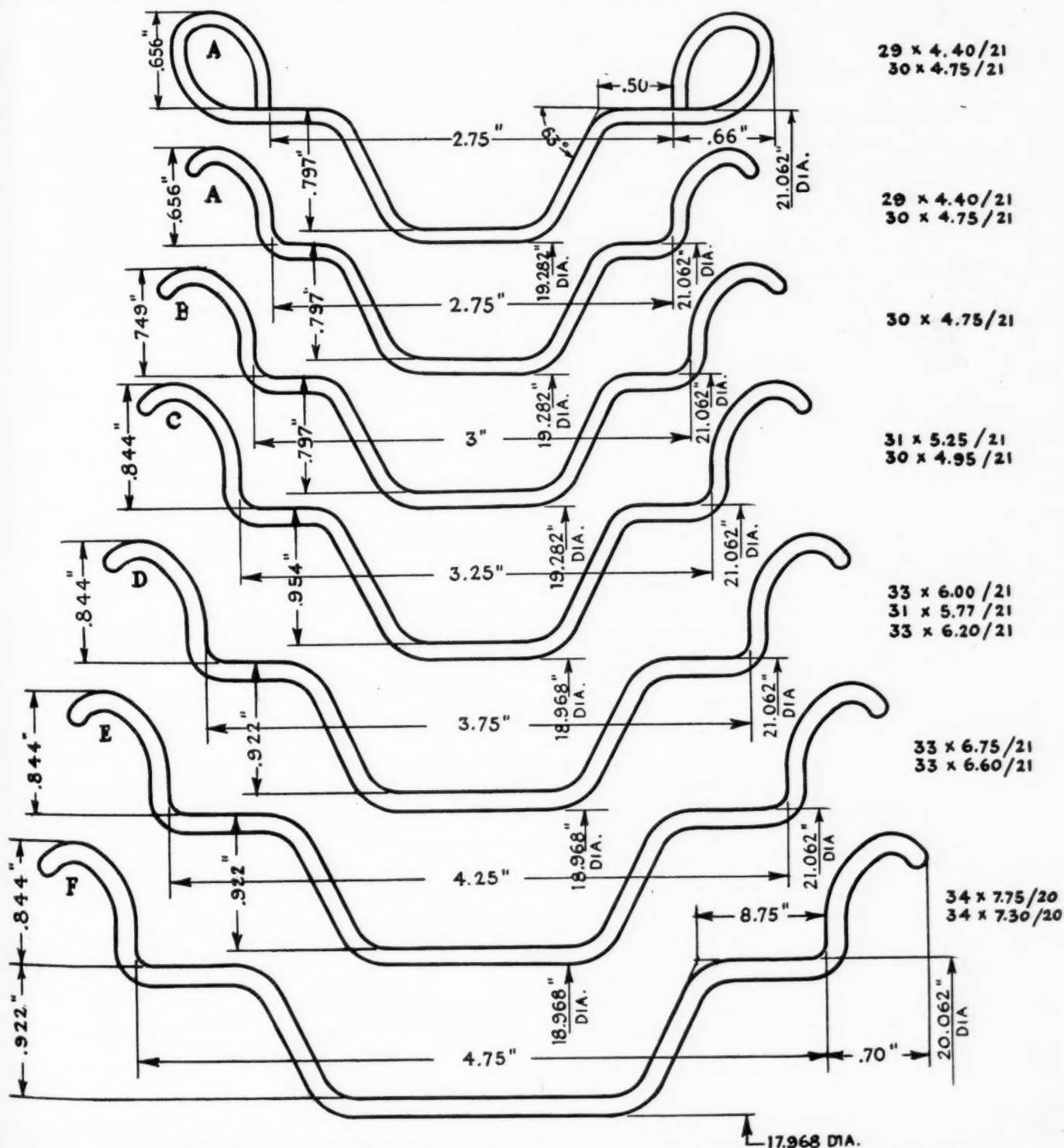
plicity of valve stem—one straight valve for all sizes; inside of rim sealed so that no moisture can enter. All of these advantages have been disputed.

As against them the following disadvantages have been listed: danger of tire coming off rim; dual standard which such rim would involve; cable bead required; tubes give trouble and are not interchangeable with ordinary tubes; lack of adaptability to different wheels.

In commenting on these advantages the engineer referred to says that the drop center rim probably is a good manufacturing proposition for the wire wheel maker, since spoke lacing is simplified. It also makes the disk wheel cheaper because of the smaller disk required. In the case

of the wood wheel it has no advantage and, since the wood wheel, as he puts it, is practically the American standard, he sees no immediate future for the drop center rim, especially as the wood wheel with this type of rim will cost more than one with present standard rim.

According to this engineer the 4.40, 4.95 and 5.25 in. balloon tire sizes, which represent a very large proportion of the total production, a cable bead tire is essential, as the well in the rim is not wide enough to permit installation of the braided wire, triangular bead tire. Since the time companies are lined up to produce triangular bead tires, a change to the cable bead would prove costly. The drop center rims are suitable for four-ply tires only, as

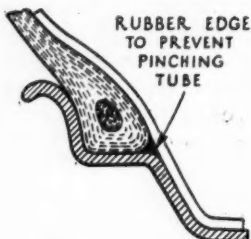


Tentative standard drop center rims adopted for experimental purposes by Tire and Rim Association. Either the inwardly turned or ordinary straight side flange is employed, contours of both being the same. There are six sizes of each but only one size of rim with inwardly turned flange is shown

the six and eight-ply are too stiff to be manipulated into the well when mounting the tire or taking it off.

Referring to the Table 3 giving ledge and tire bead widths furnished by this engineer, he says that the first three ledge widths will take cable bead tires only and are not wide enough for triangular beads. If made wide enough, the well is considered too narrow for easy application of the tire.

*Sketch showing rubber lip on bead to prevent tube from being pinched between bead and fillet at top of well*



A slight change in bead construction probably will be necessary in the case of tires designed for drop center rims. This consists in providing a small lip of rubber at the inner toes of the beads to cover the fillet at the top of the well and thus prevent pinching the tube at this point. This is illustrated in an accompanying cut. This lip would not prevent using the shoe on conventional rims,

however, and so would not involve a dual standard.

All things considered, it is likely that several months will elapse before the adoption of drop center rims comes about if, indeed, it comes at all.

To the writer the chief advantage of the drop center rim appears to lie in the comparative ease with which the shoe can be mounted on the rim and again taken off.

Naturally, the matter of first cost will play an important part. If, as claimed by some, the drop center rim is shown to be lighter and cheaper than the conventional form, this naturally will become a great asset in its favor.

Commenting further, this engineer says in effect that drop center rims are cumbersome and impractical on wood wheels or with demountable rims, but the drop center rim probably is lighter at the periphery on steel disk or wire demountable wheels.

While at the present time some tire makers manufacture shoes with triangular bead construction and for this reason would like to see a wider ledge—which would involve a narrower well unless a wider rim is employed—other makers already use the cable bead exclusively. If others shifted to this construction it would not necessarily mean a dual standard, for the cable bead would fit ordinary straight side rims as well as the drop center rim.

**Table I—Balloon Tire Sizes Recommended by Rubber Association Members**

Regular Tire Size	Balloon Sizes	Rim Sizes	Wheel Sizes	Load per Tire, lb.	Balloon Tire Press. lb.
30x3½ Fabric	29x4.40	28x3½ rim	21" diam. wheel	650 750*	28 32
30x3½ Cord	30x4.75	29x4 rim	21" diam. wheel	850 690 800*	36 26 30
31 & 32x4 Cord	31x5.25	30x4½ rim	21" diam. wheel	910 820 1,000*	34 26 32
32 and 33x4½ Cord	33x6.00	31x5 rim	21" diam. wheel	1,120 1,075 1,300*	36 28 34
33x5 Cord	33x6.75	33x6 rim	21" diam. wheel	1,450 1,500 1,700*	38 32 36
				1,900	40

\*Maximum pressure recommended for balloon tire of this section.

Seven standard sizes for straight side rims recently adopted by the Soc. of Motor Mfrs. & Traders of Great Britain:

Nominal Sizes	Wheel Diameter	Nominal Sizes	Wheel Diameter
27x4.40	19	32x5.25	22
28x4.95	19	32x6.20	20
29x4.95	20	34x7.30	20
30x5.25	20		

#### Present Balloon Tire Sizes

At present 26 sizes of low-pressure tires are being produced.

#### For Existing Rim Diameters

Balloon Sizes	Interchangeable with Regular Sizes	Balloon Sizes	Interchangeable with Regular Sizes
31x4.40	30x3½	33x5.77	32x4½
32x4.95	31x4	34x5.77	33x4½
33x4.95	32x4	35x5.77	34x4½
34x4.95	33x4	35x6.60	33x5

#### On New Rim Diameters

Balloon Sizes	Wheel Sizes	Balloon Sizes	Wheel Sizes
28x4.40	20	32x5.25	22
29x4.40	21	30x5.77	20
30x4.40	22	31x5.77	21
31x4.40 (Clincher)		32x5.77	22
30x4.75	21	32x6.20	20
29x4.95	20	33x6.00	21
31x4.95	22	33x6.20	21
30x5.25	20	33x6.75	21
31x5.25	21	34x7.30	20

**Table II—Compiled by James E. Hale**  
**Current Requirements of Balloon Tires and Rims for Original Equipment**

Tire Sec- tion	Rim Dia.	No. Plies	Rim Sec- tion	Car Manufacturers Using
4.40	21	4	3½	Ford, Gray
4.95	20	4	4	Star
4.95	22	4	4	Buick, Overland, Oldsmobile
5.25	20	4	4	Durant, Flint, Gardner, Maxwell, Moon
5.25	21	4	4	Anderson, Auburn, Cleveland, Columbia, Essex, Elcar, Franklin, Gardner, Hupp, Jewett, Lexington, Moon, Rollin, Willys-Overland
5.25	21	4	4½	Nash, Studebaker
5.77	20	4	4	Dodge, Maxwell
5.77	20	6	4	Auburn, Chrysler
5.77	22	6	4½	Apperson, Buick, Rickenbacker
5.77	22	6	4½	Apperson, Buick, Pierce-Arrow
6.00	20	4	4	Velie
6.00	21	4	4	Velie
6.00	21	4	4½	Chandler
6.00	21	4	5	Nash, Stearns
6.00	21	6	4½	Chandler
6.20	20	4	4	Anderson, Elcar, Moon, Reo, Westcott
6.20	20	4	4½	Auburn, Case, Flint, H. C. S., Haynes, Jordan, Kissel, Lexington, McFarlan, Meteor, Marmon, Premier, Sayers-Scovill, Stutz, Wills Ste. Claire, Willys-Overland
6.20	20	4	5	Studebaker
6.20	21	4	4½	Hudson, Packard, Peerless
6.75	21	4	4½	Apperson, Paige, Stearns
6.75	21	6	5	Lincoln, Peerless
6.75	21	6	6	Cadillac
7.30	20	4	4½	Case, Cole, McFarlan, Meteor, Marmon, Pierce-Arrow, Sayers-Scovill
7.30	20	4	5	Cunningham, Packard, Studebaker

November 14, 1924

**Table III—Ledge and Tire Bead Widths**

Tire Section	English Dunlop Rim Standard Ledge Width	Ledge Widths in Experimental Standard	Dunlop Tire Bead Widths
4.40 in.	.44 in.	.500 in.	.42
4.95 in.			.45
5.25 in.	.50 in.	.656 in.	.48-.50
6.20 in.	.60 in.	.750 in.	.62
7.30 in.	.60 in.	.875 in.	.67

# Just Among Ourselves

## Prices Dropping— Where Will They Stop?

**L**OOKS like "Steady" isn't the watchword on car prices any more, even if it was a few weeks ago when we wrote an article making such a statement. We pointed out in that article that price reductions might come in the near future, but that no basic economic reasons existed for cuts and that those which were made would be due chiefly to keen competition for sales. Since that time several very important decreases have been announced. Prices of materials, labor or marketing have not changed; materials seem to be tending up, rather than down, as a matter of fact. If still further car price cuts are made, as now seems likely, the result probably will be stabilization of prices on a lower level without added permanent sales advantage having accrued to any single company.

## Used Cars Affect Price Situation

**I**T always may be said of a general reduction in prices that the total market for cars automatically is widened as the price level falls. At present, however, the used car situation must be considered in making any such statement. An important automotive executive said only the other day that in his opinion the sale of low priced cars will be affected materially by used car bargains in the next twelve months. "No matter how low the price of a new car may be cut," he said, "such cars are going to be in very fierce competition with bigger second-hand cars. While this has been the case in the past, the competition is going to be keener than ever next year because of the necessity for dealers to move used cars at any cost." There is something worth thinking about in the opinion of this executive. In any case, production sched-

ules will have to be set with one eye on the conditions of the used car market.

## Used Car Problem Passes Academic Stage

**S**OMETIMES there is a tendency to get a bit too academic about this used car proposition. The used car looks very different to the student of economic trends seated before a mahogany desk than it does to the dealer who has second-hand vehicles lining the pavement on three sides of his showroom. Anybody who suspects that his view of the situation has become a bit too detached from reality can get back to earth very quickly by taking a walk down Woodward Avenue in Detroit, by reading the classified columns of the daily papers, or by inspecting the signs in dealers' windows almost anywhere.

## "We Buy, Sell and Trade at a Loss"

**A**N academic approach to a question is very useful in certain instances, but something more practical is advisable in a case where such sentiments as the following are being displayed on many automobile rows: "Used cars bought, sold and exchanged at a loss," "\$10 price reduction every hour on our used cars—\$120 a day—buy now!" "This car is worth \$600 if it is worth a dime, but we can't move it at that figure—what will you give?" "We trade—nuf sed." A lot of people blamed Luis Firpo for not training properly before he fought Jack Dempsey, but advice of that kind wouldn't have done the Wild Bull much good after he got inside the ropes with the champion. He might have realized his mistake after the fight got started, but it was too late for training then. The fight was on and he had to fight as best he could, his past train-

ing methods to the contrary notwithstanding.

The used car situation has passed the academic stage. Finally it will be solved on the basis of sound buying principles and honest merchandising methods. But the fight being waged today on the retail firing line seems to know few laws. The car builders can help more by action than by advice in the next four months. And the most practical action will be of a negative character—in refraining from loading dealers with more new cars than they can handle.

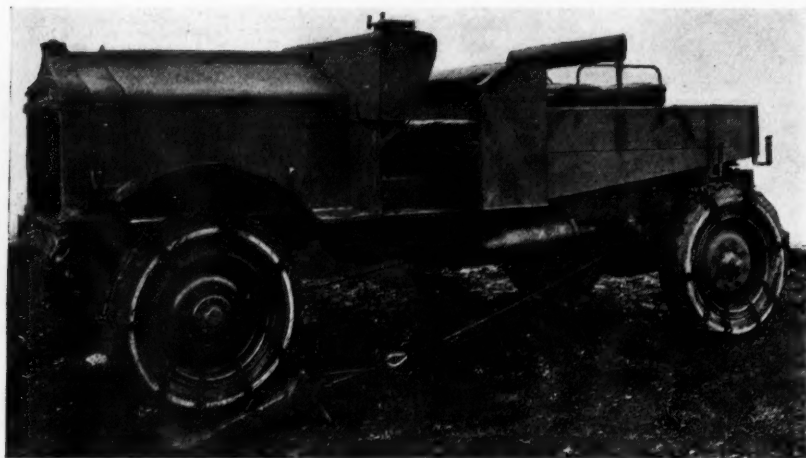
## Car Builders to Use Sound Methods

**T**HERE are indications that there will be less forcing of cars this winter than ever before. We talked to a good number of prominent executives last week in Detroit and they were practically unanimous in condemning with great vehemence any attempt to overload dealers this winter. Some were content with saying that they considered such practice undesirable—but most of them denounced the custom very emphatically, while some stated their views in language which, for expressiveness and picturesqueness, might have made a Marine sergeant jealous. All of which indicates that 1925 is going to see the industry in a healthy, sound condition with more satisfactory conditions for everybody than existed in 1924.

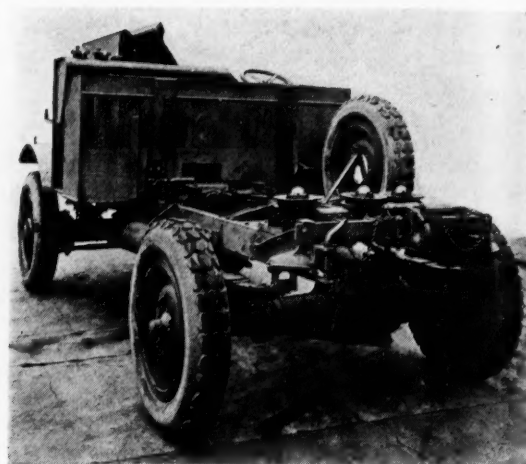
## And Still the Straight-Eights Come

**T**HERE shall be straight-eights and rumors of straight-eights. Another car bearing an engine of this type is due about show time, while the announcement before spring of more engines of this type would not cause any great surprise in the industry.

N. G. S.



Thornycroft four-wheel driven tractor with wheels blocked for use of winding gear



Rear end of tractor showing axle construction and sheaves for winding cable

## British Four-Wheel Drive Military Tractor Has Six Forward and Two Reverse Speeds

*Well known truck manufacturer will build them for commercial purposes. Six cylinder engine has dry sump lubrication, worm drive, pneumatic tires. Transmission brakes act on four wheels.*

By M. W. Bourdon

**A** FOUR-WHEEL drive tractor built by John I. Thornycroft & Co., Ltd., which was designed in consultation with experts of the British Army transport department, successfully passed through the tractor tests conducted by the military authorities in October last and is now being put in production also for civilian purposes.

After the four-wheel drive the most notable point is the provision of a gearset affording six forward speeds and two reverse, while another outstanding feature is the elimination of wheel brakes, braking effect being applied to all four wheels through the transmission.

The engine has been evolved specially for this use. It has six cylinder in threes with overhead pushrod-operated inlet valves and side exhausts, an arrangement favored by this maker for truck and marine engines. The bore and stroke are  $4\frac{3}{4} \times 6\frac{1}{2}$  in. (695 cu. in. piston displacement), the power output at normal speed (1200 r.p.m.) being 90 b.hp., but the engine is capable of running at 2000 r.p.m. and over. A dry sump system of lubrication is used with a 5-gal tank on the dashboard.

Ignition is by magneto with an impulse starter, the detachable starting crank being mounted on the left-hand front dumbiron and connected to the crankshaft by a two-to-one chain gear. The gasoline tank on the dashboard holds 30 gal. in its main section and a further 6 gal. in an emergency compartment. The carburetor is a Solex, with variable hot air supply from an exhaust muff, and is bolted to a T-shaped manifold, the ends of which are continued 4 in. beyond the extreme front and rear branches, the latter a feature which is claimed to promote fuel efficiency. The water pump and radiator fan are driven by a link belt.

In a main frame of 6-in. rolled channel steel the engine

is offset 7 in. toward the left-hand side; it is supported on the left directly from the main frame and on the right by a single channel steel member which forms a sub-frame for the power-unit and gearset. This offsetting is arranged to afford clearance for the propeller shaft running forward to the front axle and also to give the center casing of the latter sufficient clearance from the crankcase.

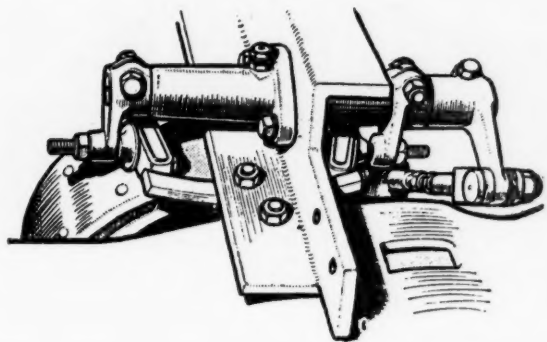
The clutch is of the cone type and connects to the gearset through a pair of flexible disc joints. As already intimated, the gearset provides six forward speeds; these are all indirect and consist of two sets of three ratios, each set being operated by the usual "gate" lever; a second lever is provided to bring the other set of three forward and one reverse gears into use when required. It is intended that the higher set of three gears shall be used where the traction is normal and the lower set where heavy conditions obtain.

### Arrangement of Change Gears

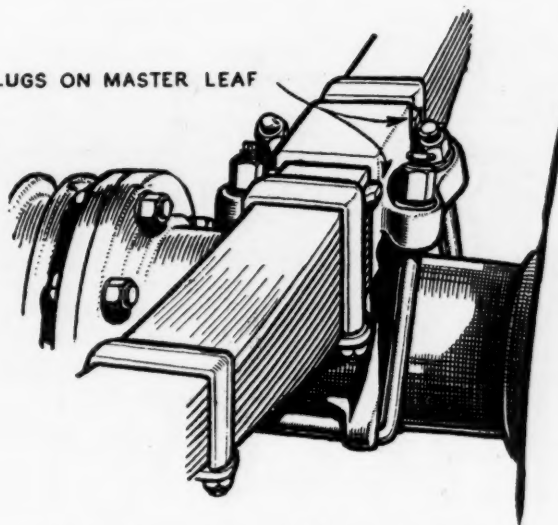
The two sets of ratios are secured as follows: The main shaft carries two sliding members with pinions engaging as usual with fixed wheels on an intermediate shaft; power from the latter is taken through a third shaft—termed the transposing shaft—by means of gears on a sliding sleeve which, in effect, constitute alternative constant mesh wheels. The transposing shaft carries at each end the casing of all-metal universal joints of the sliding block type, whence open propeller shafts run in either direction, with star universals at their extreme ends coupled to overhead worm gearing in the axle casings.

Ball bearings are used for all the shafts in the gearset, which also includes provision for three auxiliary

*Brake actuation by means of mushrooms pressing on inclined planes on brake shoes*



*LUGS ON MASTER LEAF*



*Method of securing springs on axle, with box clip and projecting lugs*

drives, viz., speedometer, tire pump and winding gear. The latter is brought into use by a third lever alongside the driver when the auxiliary lever of the gear change is in its neutral position.

No differential is fitted between the front and rear wheel drives, tests having shown it to be unnecessary and undesirable because it impairs the performance of the vehicle on rough ground and soft going. So far as their central portions are concerned the front and rear axles are identical and comprise malleable castings with openings at the top only to permit the assembly of the differential and worm gearing as a unit attached to the cover plate. The worm gearing provides a reduction of  $8\frac{1}{4}$  to 1, the worm having four threads of 3.429-in. pitch diameter and 29 deg. worm angle, while the worm wheel has 33 teeth with 1.476-in. pitch and 14.521-in. pitch diameter.

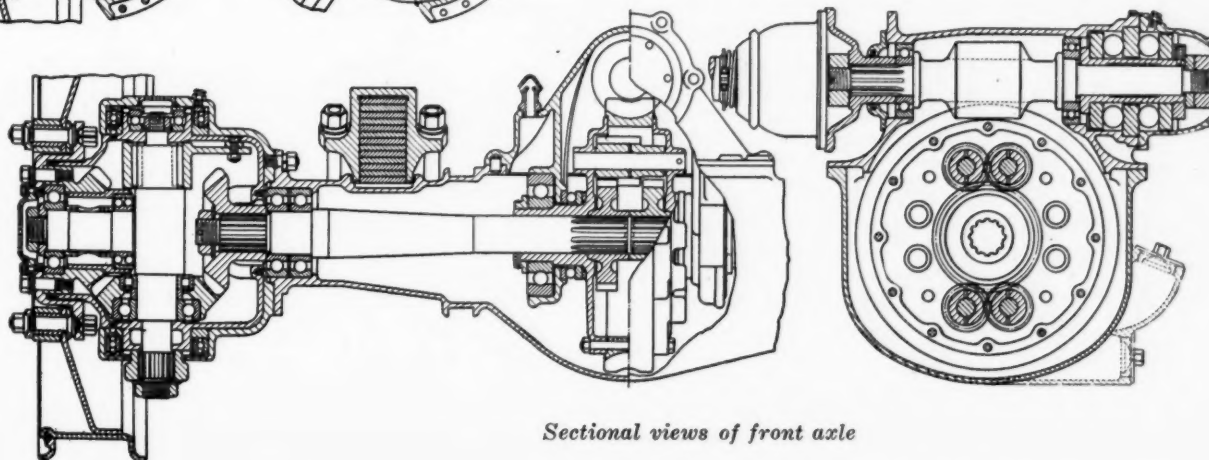
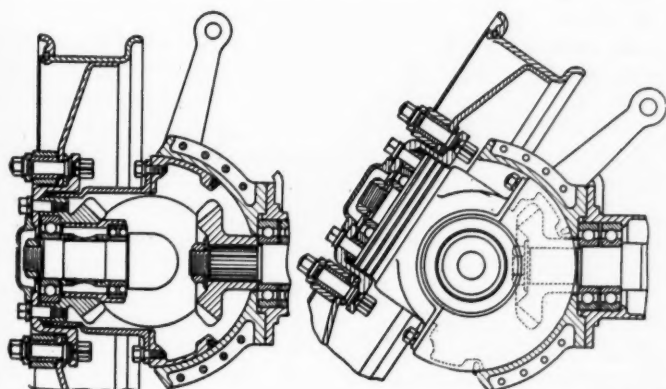
At each end of the main casing of the front axle is bolted an extension casing semi-circular in sectional plan and to this the steering pivot and stub axle unit are secured. The pivot pin, in addition to supporting the stub axle, carries near its lower end a bevel wheel. This

bevel wheel constitutes an idler interposed between equal sized wheels on the axle shaft and the wheel hub. The whole of this gearing is inclosed by the semi-circular axle casing and a corresponding half-casing attached to the wheel hub; something approaching an oiltight joint between the two is secured, irrespective of steering wheel movement, and in view of this the complete casing is provided with an oil filler.

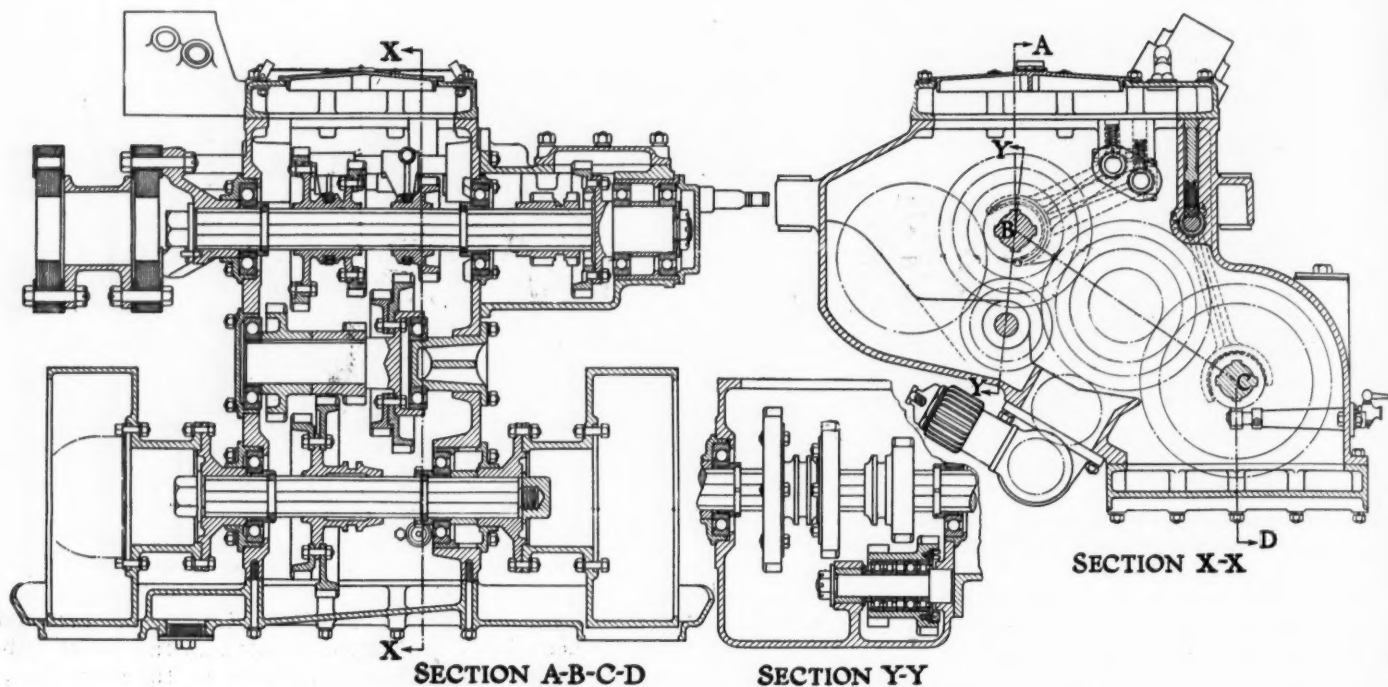
#### No Brakes on Wheels

All four wheels are free from brake drums, the whole of the braking power being secured from contracting bands applying to drums at each end of the transposing shaft of the gearset. This not only simplifies the front axle and wheel hub construction, but it removes the brakes from positions where they might well be damaged or choked with dirt. The brake drums on the gearset are 14 in. in diameter with friction surfaces 5 in. wide and are integral with the universal joint casings. The bands are of fabric-lined steel. One of these brakes is actuated by pedal and the other by lever; either will hold the tractor and a five-ton trailing load on a 20 per cent gradient.

There is a special feature in connection with the springs, which are of the semi-elliptic type and take both torque and drive which has to do with the way the springs are prevented from shifting endwise on the axles. A pair of U-bolts with their threaded ends at the top and inclining toward one another from each side of the axle casing serve to clamp to the center of



*Sectional views of front axle*



Sectional views of transmission with six forward and two reverse speeds

the spring a box-like clip some 4 in. long, of which the sides extend down almost to the depth of the spring as a whole. This box clip locates the master leaf of the spring by reason of the latter having a pair of integral projections at each side of it with the clip in between. No center bolts are employed.

The steering gear is of the worm and nut type with a drop arm moving laterally and connected to a transverse and ball-jointed drag link. The coupling-rod passes through a slotted bracket fixed to the axle center to prevent vertical oscillations.

#### Details of Winding Drum

The winding drum of the present series is set on a horizontal transverse axis behind the gearset and is approximately 20 in. long, being driven from the main shaft of the gearset through a coupling shaft and 28 to 1 worm drive reduction; but as this arrangement necessitates a somewhat involved mechanical laying-on gear for the cable, it is intended in future to use a larger diameter narrow drum on a vertical axis which will lay on the cable automatically. Fifty feet of cable is carried and taken back between a pair of guide pulleys mounted on the rear end of the chassis; in addition a third pulley is fitted on the left-hand front dumbiron enabling the cable to be carried forward so that the vehicle can haul itself and its load up precipitous gradients.

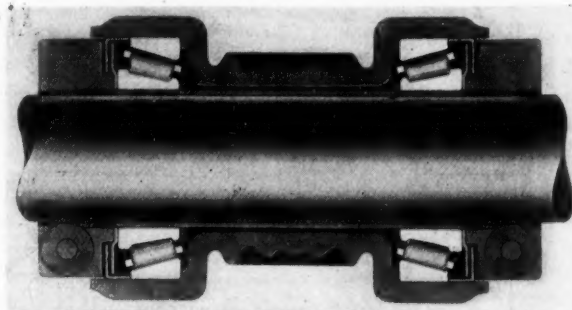
The complete tractor weighs approximately 11,100 lb. and has proved capable of exerting a steady pull of 9000 lb. recorded by a Watson dynamometer. With a trailer loaded to make up a total weight of 15 tons, a speed of 7 m.p.h. is secured on a 10 per cent gradient, and with a total weight of 10 tons stops and restarts are possible on a 20 per cent slope. Hauling 5 tons on a trailer a fuel consumption of 4.15 miles per Imperial gallon has been secured, while on made roads a speed of 30 m.p.h. has proved feasible. The maximum ground clearance is 10 in., but 24 in. is available below the central part of the chassis. The wheelbase is 138 in. and the track 72 in. Straight-sided pneumatic tires (40 x 8 in.) are recommended.

#### New Roller Type Line Shaft Bearing

A NEW line shaft bearing with Timken tapered roller bearings and several other features has been placed on the market by the Dodge Mfg. Corp. of Mishawaka, Ind. The bearing is simple in design, there being only five parts in the assembly. The two Timken bearings are mounted on a ground and slotted steel tube and fitted into an accurately machined housing. The ends of the steel tube are threaded to receive clamping collars by means of which the bearings are adjusted on the tube. This adjustment is made at the factory and need not be altered thereafter.

By setting up the screws in each of the two clamping collars the sleeve can be fastened securely on any commercial shafting. The outer ends of the bearings are provided with metallic grease seals which are claimed to eliminate the friction resulting from the use of felt washers and at the same time to prevent the loss of grease and the entrance of dust and dirt. The space between the housing and the tube or sleeve is filled with grease.

Erection of line shafting with this bearing is quite simple. It is only necessary to slip the bearing over the shaft and set up the clamping screw in each of the clamping collars. The bearing can be removed by the reverse operation.



Dodge line shaft bearing with Timken roller bearings

# Highway Research More Than Pays for Itself

*Evidence of actual savings presented at annual meeting of the Highway Research Board. Motor truck capacity and traffic should determine character of road. Counties and States spending most.*

By D. G. o'Connor

**W**HAT is the value of highway research to the people of the United States in dollars and cents? In industry, scientific research has proved its worth until today there are more than 500 research laboratories connected with individual concerns, some of which are spending millions of dollars annually. Empirical, rule of thumb, trial and error methods are giving way to scientific research.

Iowa recently saved \$154,000 in building a road 54 miles in length. In 1923, using loose volume methods, it cost \$2.60 per sq. yd. of cement road. In 1924, weighing the aggregate to improve quality and insure uniform product, costs decreased to \$2.51 per sq. yd. That is only one of the items Thomas H. MacDonald, Chief of Bureau of Public Roads, cited at the fourth annual meeting of the Highway Research Board, Division of Engineering, in Washington, D. C., recently.

Accomplishment and progress in the fields of design and construction were outlined in every report and address given at the meeting.

Mr. MacDonald, talking of the value of highway research, went on to say that there is an impression that every road-building contractor loses money. In an analysis of failures connected with Federal Aid projects in road building, labor shortage was responsible for 7 per cent, management for 27.1 per cent and weather for 33 per cent. He pointed out that the one greatest element of loss was in miscellaneous delay and that this item had been and could be reduced.

T. R. Agg, Iowa State College, in a committee report on the "Economic Theory of Highway Improvement," stated that the factors involved were the relation of road surface to the cost of transportation and the type of vehicle to the cost of vehicle operation.

## Question of Variations

At a speed of 10 miles per hour, he said, there is as much as 20 to 700 lb. per ton variation. Research undertaken at the university at Ames, Iowa, showed relatively little variation in the rolling resistance between low pressure and cord tires except on a smooth surface at slow speeds.

As regards determining operating cost per vehicle on a general cost basis, Mr. Agg said the factors concerned are the cost of the road per given traffic density, cost of road maintenance and vehicle operating costs.

Experiments made at the University of Kansas showed that a standard tire run over a cement drum lost 15 grams in weight per 500 miles. On a standard Dodge touring car a similar 32 in. tire inflated to a pressure of 65 lb. showed a loss of thirteen times that amount on an asphalt road through which sharp gravel projected, four times that amount on a gravel road and, where the gravel was

sharp, eleven times that amount. Inflated to a pressure of 35 to 45 lb., there was three to four times the amount of wear that there was over the cement drum, but bounding was lessened.

In discussing this report, G. F. Schlesinger of the Ohio State Highway Commission stated that it cost three cents a mile less to operate a vehicle over an improved road, and that the question of determining improvement depended on whether a road could be made to pay a dividend on the investment involved. He pointed out that what is needed are standardized records of the traffic use of the road, life of various types of pavement, annual maintenance cost and operating cost per vehicle. In determining the type of road to be built the question arises as to how much of the material can be economically used again when the road has lived its life.

## Funds Lacking for Building Ideal Roads

Mr. Schlesinger pointed out, too, that sufficient funds were lacking for building the ideal type of road in most localities. Given two cities twenty miles apart with \$100,000 available to spend on the road, it would not be reasonable to put down a short piece of high type pavement at either end and allow the remainder of the road to go unimproved. Too, the effect on adjoining and nearby property values remains to be determined.

Professor Wooten of the North Carolina State College said that experiments undertaken at his college had been with a 1½ ton electric truck and that results obtained tended to show that there is very little difference in the power consumed over the best gravel and concrete roads. While these two types of road gave the best results, asphalt, too, was satisfactory.

In his report C. M. Upham, director of the Highway Research Board, stated that State and county expenditures for roads are greatest, and that the board acted as a clearing house for information. Not only is it putting out the results in full in its bulletins, but in a briefed form as well. Progress, he said, is limited only by transportation and, to accomplish the most, economy in construction is essential. One of the recent developments was the forming of a group of contact men in the various States throughout the country. Of the forty-eight States, forty-five have appointed contact men.

Discussing the problem of designing tires to meet varying requirements, J. C. Sproull of the Goodrich Tire Co., Akron, Ohio, said that soft tires conserve the road but that hard tires consume less power.

The highway finance committee, H. R. Trumbower chairman, senior transportation economist, U. S. Bureau of Public Roads, reported that passengers per car have lessened from 2.5 to 2, that the average train trip is 36 miles while the average commercial car trip is 45 miles.

Highway expenditures exclusive of interest and principal range from \$9 per capita to \$35 per capita, the latter in Oregon. Massachusetts, which has no gasoline tax, spent 65 per cent of license fees on the roads. Average gasoline consumption per year per car was estimated at approximately 450 gal.

In some States there are three taxes charged on cars. Only thirteen States do not charge a personal property tax. In addition to this tax there are the license fees and the gasoline taxes, which range from one to four cents per gallon, and some communities go so far as to add a fourth, a wheelage tax.

#### Defaulted Contracts

Frank Page of the North Carolina State Highway Commission gave an address on "Defaulted Highway Contracts." He said that of 700 projects under way in his State 35, involving 21 contractors, had "gone broke." He laid no small part of the blame on the companies issuing bonds covering these projects. Bonds were provided for men totally without experience in road building, men without equipment, men who had failed, some of them several times before, on similar projects.

The people in any State or community would look with suspicion on the acceptance of a contract for more than the lowest bid for any piece of construction, and rightly so, Mr. Page said, yet with the bonding companies providing security for men not able to carry out their contracts the highway commissioners are constantly involved in difficulties.

Mr. Brockton of the Maryland Casualty Co. admitted that faults exist in the present system of bonding road construction projects, but added that his own as well as the other reputable companies are eager to remedy these. He pointed out that no company wants to lose money and that the majority of risks are not the men who have failed or made big successes, but the men or corporations who are on the border line.

G. E. Hamlin, Connecticut State Highway Commission, chairman of the committee on highway traffic analysis, said that his survey included yearly, daily and future traffic and their effect on the economic investment in new roads. The cause of accidents, he stated, is slow moving vehicles. He suggested that a minimum speed limit be determined.

He added that in Pennsylvania on the Philadelphia-Ardmore highway, 22 per cent of the vehicles are high tonnage trucks and that 20 per cent of the traffic on the Philadelphia-Chester highway consists of trucks. This led to the conclusion that motor truck capacity and motor truck traffic should be the determining factor as to the character of the road.

#### Rate of Traffic Increase

In discussing this report, John Mackall, Maryland State Highway Commission, stated that in the last thirty years railroad freight tonnage has increased faster than the cube of the population and railroad passenger mileage has increased faster than the square of the population. He went on to say that there are apparently two conflicting principles involved in road building: one, that of building a road to carry the ultimate traffic, the other for present needs. He said that slow moving traffic might be the cause of the majority of accidents, but that he believed that it was a question rather than a fact.

A. H. Blanchard, University of Michigan and president of the National Highway Traffic Association, addressed the meeting on "Comprehensive Research Program Justified Because of Increase in Highway Improvement and Economic Utilization of Highway Transport." Several years ago, he stated, a highway commissioner now de-

ceased admitted that in one year his program had caused a loss of \$1,000,000 to his State. He had used untested methods on a wholesale scale, had not investigated the methods employed in neighboring States, nor had he conducted any research.

Progress in highway research went on satisfactorily from 1905 until 1910. From that time until 1920 such research lagged. Cooperative research will reduce costs, provide tests, improve widths and materials of roads and give executives facts from which to work out their individual problems.

He cited a saving of \$180 in one year with the same car over the same road after improvements had been made in the road and after dust had been reduced. In the State of Michigan in 1923 there were 730,658 cars registered. Consider, he said, the possibilities of saving even \$50 per car for each of 100,000.

The remainder of the session was given over to the selection of materials for road building and maintenance and the various technical problems connected with road maintenance.

#### Politics of European Speed Competitions

RACING continues to be a very important factor in the development of automobile markets in continental Europe, and throughout the summer the automobile publications issued in that part of the world (most of which have a distinctly popular appeal) are filled with reports of track and road races, hill climbs and other forms of public competition. Many of the contests that are being held are of an international character, and these are subject to the control of the Sports Committee of the Association of Recognized Automobile Clubs.

These clubs in the countries referred to are more or less the direct representatives of the national industries, and in sanctioning events and formulating rules for same they endeavor to favor their industries in every possible way.

One of the newer international races is the Grand Prize of Europe, which this year was held at Monza, Italy. It seems that the International Sports Committee at one of its sessions decided that this race in 1925 should be held in Belgium, and in 1926 in Spain. This decision was protested by the Italian members as contrary to the regulations. The protest was allowed and the committee was about to call another meeting to decide upon other suitable scenes for the races of the next two years when the Italians magnanimously declared that the mere acknowledgment that the selection of Belgium and Spain had been contrary to the regulations satisfied them, and that they would not insist upon a change in decisions already made.

It now appears that in taking this action they merely sought to create a favorable atmosphere for carrying through another proposal, to the effect that the different Grand Prize races shall in the future be combined into a world's championship contest. Contestants for the championship must take part in at least three of these races among which the Grand Prize of Italy is to be obligatory and predominant. Important cash and art prizes have been set aside for the Monza contest by the Automobile Club of Italy, which appears to believe that it has thereby acquired the right to ask that special weight be given to the results of this race. The matter is at present the subject of discussions in the French and Italian automobile press and the final decisions will be awaited with interest also in this country, notwithstanding the fact that our industry no longer considers road racing a profitable form of publicity.

# German Bevel-Gear Drive Truck Uses Pressed Steel Parts Extensively

*Three-ton Vomag has double valve springs and detachable cylinder head. Four-cylinder, block-cast engines offered in two sizes. Inlet and exhaust valve interchangeable.*

By Benno R. Dierfeld

**P**RESSED steel parts are used extensively in a new German truck, the 3-ton Vomag, manufactured by the Vogtlandische Maschinenfabrik in Plauen, a concern that has specialized on motor trucks for the past ten years. The designer of this truck is Herr Teigland, technical manager of the Vomag works, who recently visited the United States.

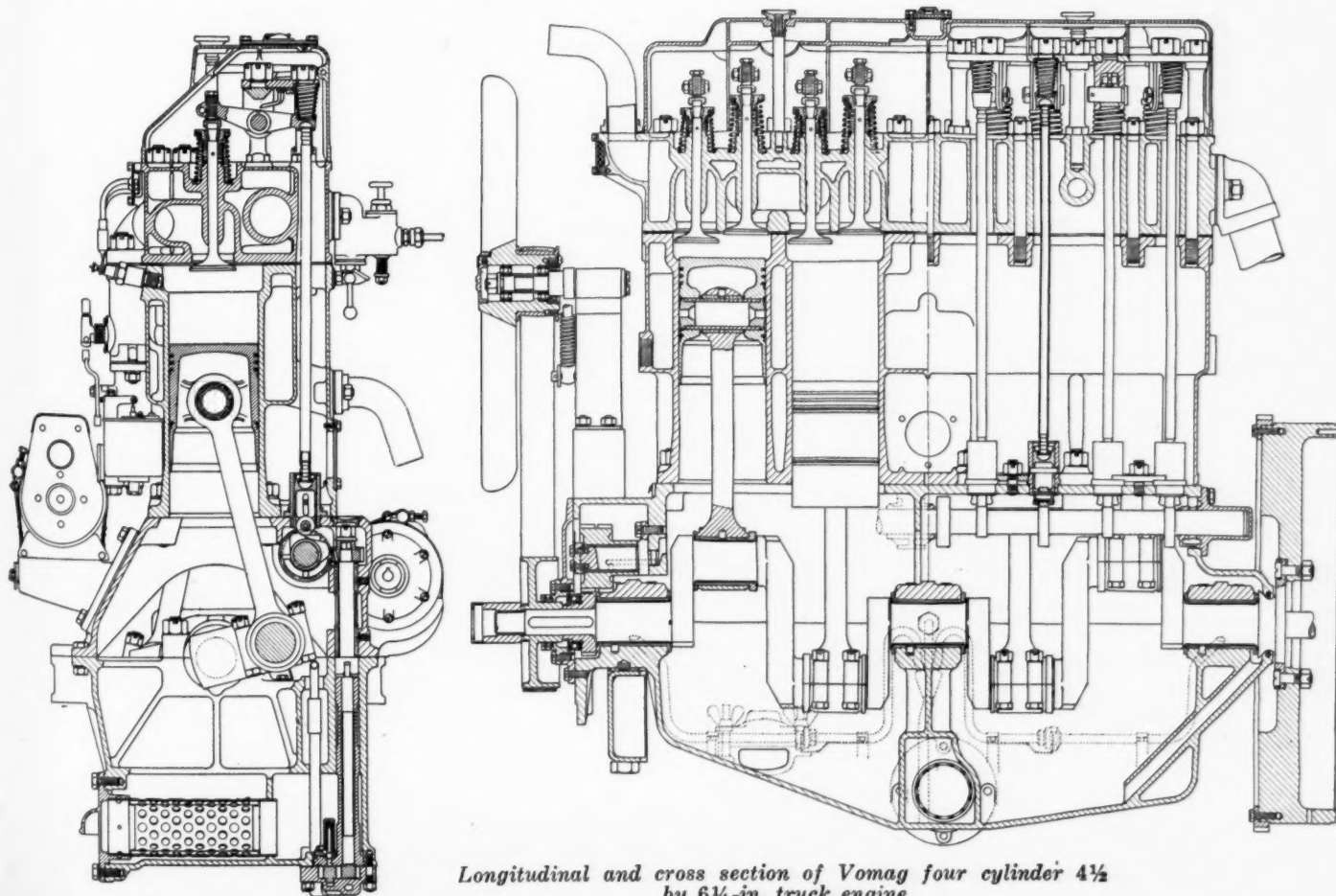
A four-cylinder block-cast engine is fitted in every case, but two sizes of engine are offered to meet different operating conditions. Both engines have a bore of 115 mm. (4.53 in.), while the strokes are 160 and 180 mm. (6.20 and 7.09 in.) respectively. The displacement volumes are 402 and 457 cu. in. respectively, and the power ratings are 50-55 and 55-60 hp. at 1000 r.p.m.

The inlet and exhaust valves, which are interchangeable, are located in the detachable cylinder head and are operated from a camshaft in the crankcase in the usual way. Double valve springs are used and there is also

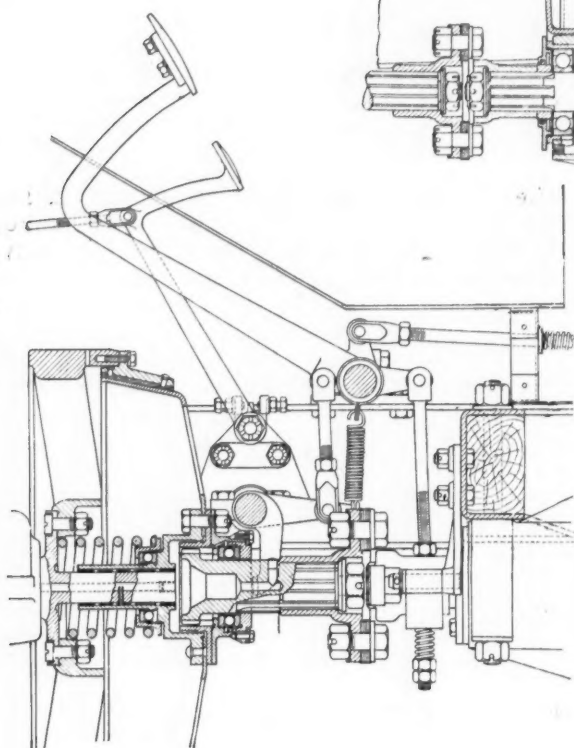
a weak coiled spring on top of the rocker arm in line with the pushrod which serves to take up lost motion and thus to add to the quietness of operation. The valve operating mechanism is completely inclosed. The inlet and exhaust manifolds are cast in the cylinder head. The combustion chambers are completely machined.

Aluminum alloy pistons are used, with flat heads and fitted with three rings above and an oil-scraper ring below the piston pin. The latter floats in both the piston bosses and the top end of the connecting rod. The pistons are almost 6½ in. long and therefore have very liberal bearing surface, especially in view of the fact that the rings are quite narrow.

A most interesting feature of the engine is that the three main bearings of the crankshaft are supported on the bottom half of the crankcase, which is completely closed at the bottom. There are large handholes in the top half of the case, provided with suitable cover plates,



Longitudinal and cross section of Vomag four cylinder 4½ by 6¼-in. truck engine

Vomag friction clutch  
and control mechanism

through which the main, as well as the "big end" bearings, can be adjusted. Probably for the average user, who has no pit, it is easier to make the adjustment through these handholes than from the bottom.

A Zenith carburetor is bolted directly to the cylinder block, ignition is by a Robert Bosch magneto with automatic advance, the generator is mounted on a bracket cast integral with the upper half of the crankcase, and the electric starter drives to the toothed rim of the exposed flywheel in the usual manner.

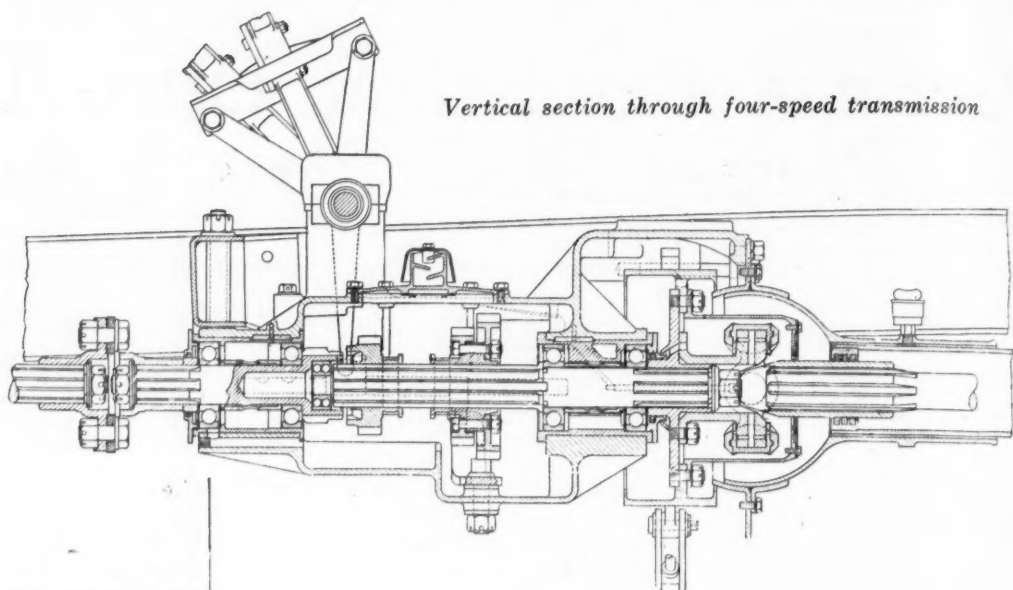
There is nothing unconventional in the cooling system except that the fan bracket is worked up from a length of strip steel, which is bent to form an eye at the top, in which, after the eye is completed by welding, the fanshaft is supported.

#### Bonnet Support Independent of Radiator

The cellular type radiator is inclosed in a pressed steel (instead of the conventional cast iron) shell. The supporting brackets also are of steel and are fastened down to the frame by two bolts surrounded by coiled springs to prevent injury to the radiator by weaving of the frame. The engine bonnet does not rest on a ledge on the radiator, but is supported by a special steel frame at the forward end so as to prevent injury to the radiator by the bonnet.

Lubrication is by the pressure system. The pump is located at the lowest part of the crankcase and is driven from the camshaft through helical gears. It draws in oil through a large size strainer and forces it through tubes to the main bearings. Cylinder walls and piston pin bearings are lubricated by the oil spray, while the

Vertical section through four-speed transmission



valve mechanism on top of the cylinders is lubricated by oil vapors which pass up through the inclosures for the pushrods.

Three-point support is used for the engine. At the front the latter rests directly on a cross member of the frame, while at the rear there are two supporting lugs cast on the bottom half of the crankcase. The engine is hung from the frame at these points through the intermediary of sheet metal hangers which are ribbed for stiffness and cross-connected by a steel rod so as to relieve the crankcase of any strains due to weaving of the frame.

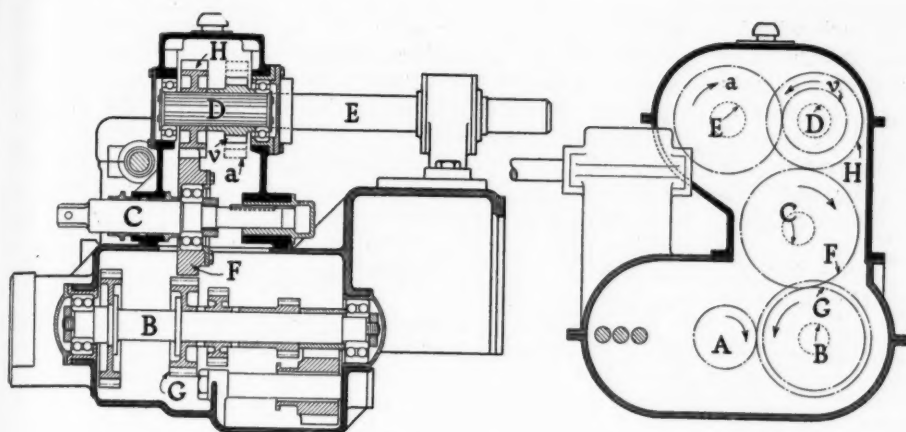
#### Clutch and Transmission Features

The clutch is of the inverted cone type and faced with asbestos fabric. Its spindle is lubricated from the engine oiling system. A short shaft with one metal and one flexible disk coupling is inserted between the engine and transmission. As may be seen from the accompanying drawing, the bearings for the clutch-operated shaft are made of steel pressings, which replaced malleable castings formerly used. The shaft is made of ordinary cold rolled stock and has the shifter arms screwed into it.

The transmission is of the four-speed type and is carried on two cross members of the frame. The design is conventional, except for the method of securing the secondary gears to the shaft. It will be noticed from the drawing that the secondary shaft is provided with two large diameter flanges, to one of which the constant mesh gear is bolted and to the other the third speed gear. This latter flange takes the driving strain for all three of the lower forward speeds, as the gears for these three speeds are joined together by clutch jaws. Lubrication of the transmission is by oil and a breather on the cover plate is a noteworthy feature of the housing. The gear-shift gate is made from a piece of flat steel, this construction having replaced a sector of cast steel formerly used. The emergency brake lever moves on the usual sector.

Directly back of the transmission is the transmission brake, the drum of which is about 12 in. in diameter and has a face width of  $4\frac{1}{2}$  in. This brake is of the contracting or external block type and is operated by pedal.

For special purposes a power take-off is furnished which can be fitted to the top of the transmission without any other changes in the chassis. In one of the illustrations the housing of this power take-off is shown in black, while the housing of the transmission is sec-



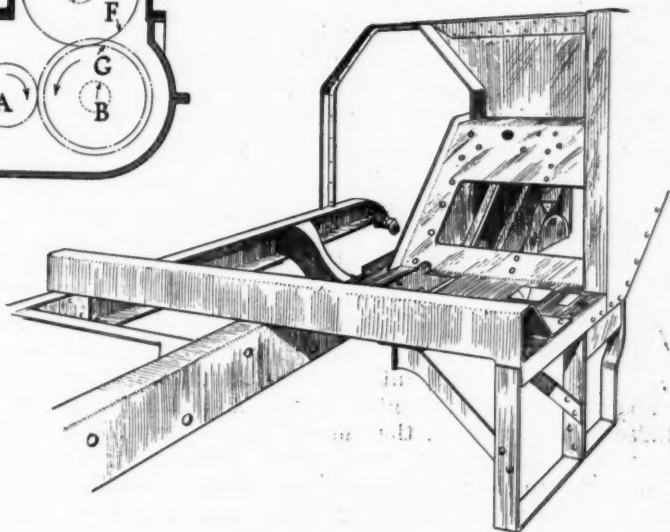
Sectional views of power take-off on transmission

tioned in the usual way. Power is transmitted from the main shaft A of the transmission to the secondary shaft B, thence to the coupling shaft C, the countershaft D, and finally to the drive shaft E of the power take-off. The power take-off is put in action by means of a hand lever which is connected to the coupling shaft C.

When the intermediary gear F of the coupling shaft C is meshed with gear G of the transmission and with gear H of the power take-off countershaft D, the power take-off is in operation. If gear F is shifted to the right until it is out of mesh, the power take-off is disengaged. Shaft E of the power take-off is mounted in an outboard bearing and a power pulley may be mounted on it for power work. By changing the gears a and v the speed of the power take-off shaft may be varied between 200 and 1600 r.p.m. This power take-off is found handy for driving pumps on sprinkling wagons, for coal dust loaders, three direction dumping bodies and for operating the tools of portable machine shops.

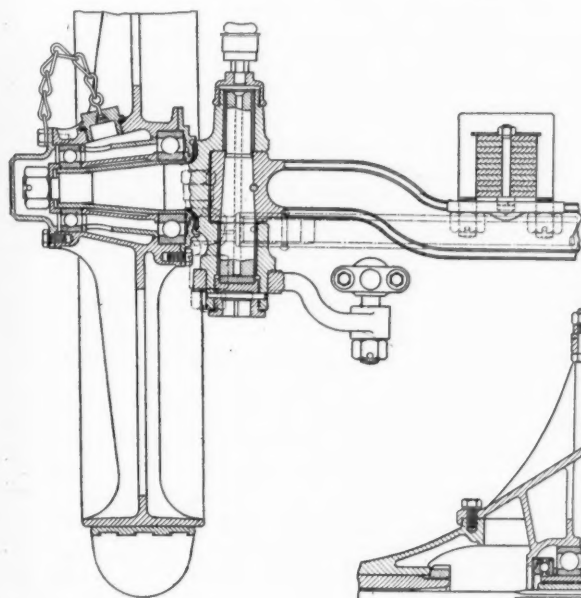
The rear axle is of the full-floating type, with a banjo

Below — Frame attachment providing for seating the driver alongside of the engine.

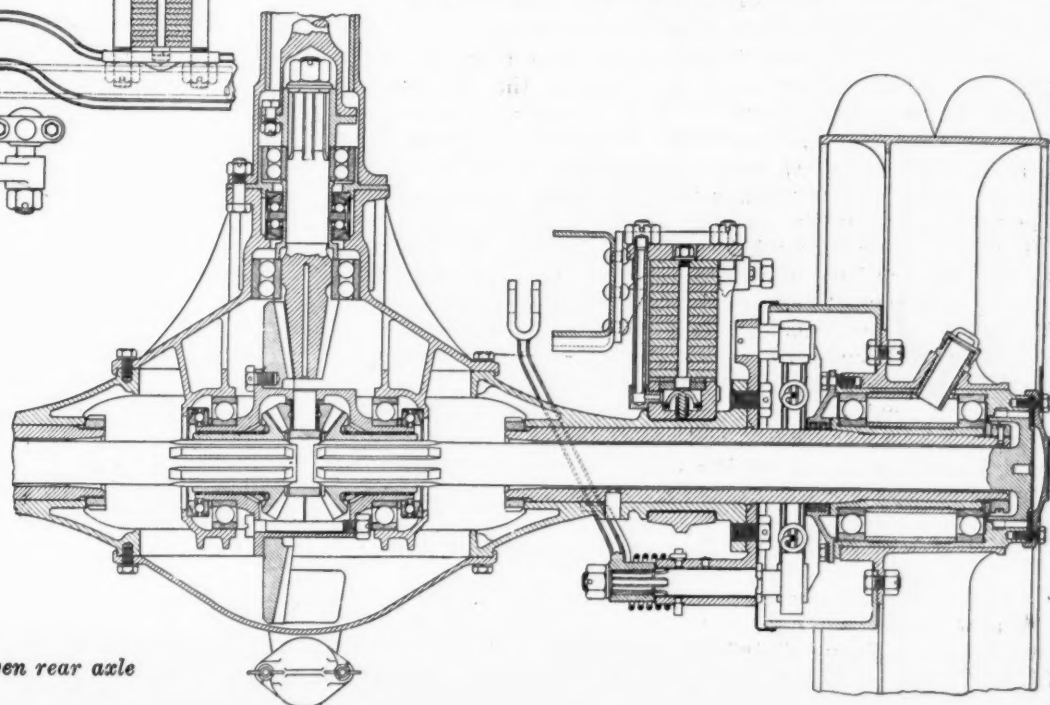


type housing comprising a forged central member into which are inserted axle tubes of chrome nickel steel which are produced by boring out solid bars. The final drive is by bevel gears, the single reduction being made possible evidently by the use of a low speed engine and a bevel pinion with a comparatively small number of teeth. This pinion is forged integral with its shaft and is very substantially mounted in ball bearings. Oil lubrication is used in the rear axle. It will be noticed that annular ball bearings are used throughout the axle.

The cast steel road wheels are fitted with 40 by 5½-in. dual solid or equivalent giant pneumatic tires. These wheels can be readily demounted, because the ball bearings are secured not directly to the axle tubes but to hub sleeves that are taken off with the wheels. There is a



Front axle end



Section through bevel-driven rear axle

special oil filler incorporated into the hub of each wheel.

Half elliptic springs are fitted all around. As the rear springs transmit the driving thrust their forward ends are pivoted directly to the frame. The steering gear is of the screw and nut type and is lubricated by grease cups. Both the steering wheel spider and the throttle sector are steel pressings. The hub of the steering wheel is a carbon steel forging and has the spider riveted to it.

A rather unusual type of knuckle arm is used. This is of flat section and is fastened to the knuckle flange by bolting on an oval surface.

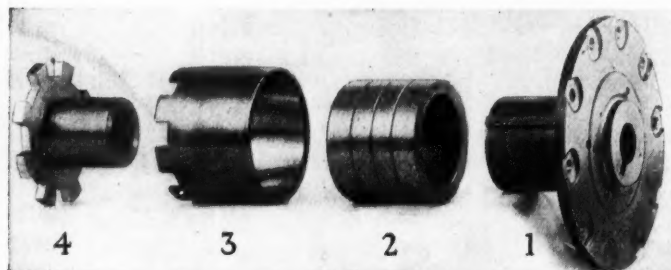
For special purposes the truck is arranged with the

driver's seat at the side of the engine, whereby the length of the available loading space is increased by 40 in. Having the driver's seat beside the engine is said not to interfere with the removal of the engine, clutch and transmission. The particular construction used has been patented, and this type of chassis has proven of advantage for omnibuses and also for trucks intended chiefly for the transportation of bulky goods. In the case of buses it has the double advantage of adding to the seating capacity and of insuring a freer view for the driver.

The chassis has a wheelbase of 159 in., the tread being 63 in. in front and 64½ in. at the rear.

## Gearless Differential Developed by Syracuse Axle Corporation

A NEW gearless differential developed by the Barty Axle Corp. of Syracuse, N. Y., is claimed to give a motor car all the advantages of a solid axle drive combined with those inherent in a standard differential. The differential comprises the four parts shown side by side in the photograph. Of these, part 1 is keyed to the left and part 4 to the right drive shaft. Part 2, which has an elliptical contour, is keyed to the hub of part 1, while part 3, which is forced over part 2, has a bore greater than the minor diameter and less than the major diameter of the elliptical section of 2; it connects with part 4 by



Parts of Barty gearless differential

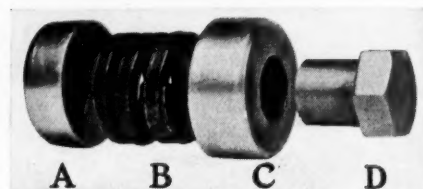
means of the clutch jaws shown. The spaces between parts 2 and 3 when assembled are filled with oil.

Evidently the drive to the left wheel is positive, while that to the right wheel is effected through the clutching action between parts 2 and 3. The resistance to motion between the latter is largely due to molecular strain in part 3, which is forced into a non-circular shape by part 2, and when there is relative motion between these parts the major axis of the deformed part 3 travels around. The resistance to motion between these parts can be varied by varying the bore of part 3 and the major and minor diameter of part 2. Normally it is made to correspond to one-half of the resistance to slipping of the wheel on a good dry road surface. It is stated that the dimensions of the parts are so chosen that the metal in part 3 is not stressed beyond its elastic limit. This steel band 3 is made of oil-tempering material which is made into cylinders in such a way that the grain follows the circumference.

## Shackle Bolt Made in Four Parts

THE Ferry Cap & Set Screw Co., Cleveland, Ohio, is now manufacturing the Ferry No-Saun shackle bolt nut, which is being distributed throughout the United States by the Eaton Axle & Spring Service Co. of the same city.

Parts of Ferry shackle bolt

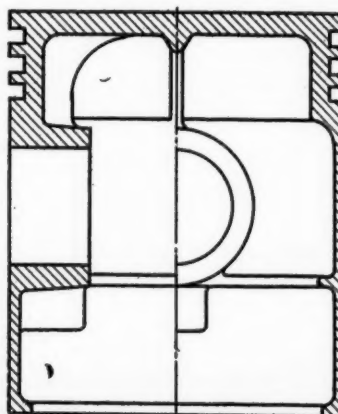


The nut comprises four parts and is specially designed to eliminate squeaks and rattles. Referring to the illustration, the cups A and C are filled with a heavy grade of grease and cups and spring are placed together and slipped over the end of the shackle bolt, with the open end of cup C on the outside. The blind hexagon nut D is screwed on to the end of the shackle bolt until the slack is taken up; then the cups are tightened up 3/16 in. This completes the assembly. The pressure of the spring is depended upon to prevent loosening of the nut.

## Patented Alloy Pistons Made In West

PISTONS cast of a patented aluminum-silicon alloy are manufactured by Tsungani Piston Company of Tacoma, Wash. Up to the present the company has been engaged chiefly in supplying replacement pistons for stock cars and trucks in the hands of users. Pistons are made from 200 patterns, ranging in size from a 2½-in. motorcycle piston to the 7¾-in. Gorham fire pump piston.

All pistons are of the conventional trunk type with solid skirts. They are furnished in a semi-finished condition, to be finished by the repair shop which makes the replacement. Clearances of from 1¼ to 1½ thousandths of an inch per inch of bore are recommended for the skirt. The alloy used for these pistons is said to have excellent wearing qualities. All castings are made in the foundry of the Tsungani company. Oversize pistons with 0.090 in. excess diameter up to 4 in. and 0.125 above 4 in. are furnished. The general design of the Tsungani piston is shown by the accompanying drawing.



Sectional view of Tsungani aluminum-silicon alloy piston

## Here and There in Foreign Markets

*By special arrangement with the Automotive Division, Bureau of Foreign and Domestic Commerce*

### Regarding Preferential Tariff

**I**N order to receive the benefit of the British preferential tariff rates in Australia and New Zealand after April 1, 1925, goods from reciprocating British areas will be required to have at least 75 per cent of the labor and material costs added in the respective areas instead of the 25 per cent proportion, as at present required, according to regulations now being drawn up by the Australian and New Zealand Governments.

Only 50 per cent of the total cost of the goods, however, will be required to be added in the British area claiming preference, provided that the necessary raw materials are not obtainable therein and that all possible processes of manufacture are performed in that area. Goods of a type not produced in Australia or New Zealand will be admitted at the preferential rates under the old conditions, if containing only 25 per cent of British Empire labor and material costs, provided, of course, the necessary raw materials are not obtainable in the British area claiming preference, and that all possible processes of manufacture are performed in that area.

### French Products Favored in Madagascar

**T**HE predominance of French cars, and the activity of the agents for French tires, combine with the high duty and exchange rate to exclude American tires from this market. Michelin and Dunlop hold the leading positions. Prices vary with the changes in the market. The usual dealer discount is 5 per cent, and small retail reductions are sometimes made when several tires are bought at a time.

### German Filling Stations Increasing

**T**HE development of the gasoline filling station service, which was unknown in Germany until about a year and a half ago, has been gradual. There are probably 100 filling stations already installed in this country, and it is estimated that there is opportunity for between 1500 and 2000 additional. There is no rigid import control, presumably because Germany has no highly developed industry of its own making this style of pump.

### Egyptian Credits Restricted

**T**HE automobile trade was normal during the third quarter of 1924. On account of the uncertain political situation several agents have restricted the use of long time credits and are operating practically on a cash basis. Sales, apparently, have not been curtailed through this change of policy, and several makes of American motor cars

were introduced to this market, during the quarter referred to.

### Will England Reimpose Duties?

**G**REAT pleasure was evidenced among British motor car and motorcycle manufacturers at the outcome of the General Election, which returned a Conservative Government to power with an overwhelming majority. They foresee the re-imposition of a duty on motor cars similar or comparable to the McKenna Duties of 33 1/3 per cent which were removed on August 1 by the Labor Government. However, even in the face of restored duties, the general improvement in business which it is felt will ensue from the effects of a majority Government, of a character more or less guaranteeing stability for a period of years instead of months, may be expected to react favorably on the motor industry in general and increase the market for imported as well as locally manufactured automotive products.

### Ottawa to Purchase Fire Equipment

**T**HE Ottawa budget for 1925 contains an appropriation for the motorizing of the fire department of that city. The budget will be acted upon in February and will probably mean the purchase of considerable automotive equipment. Interested American manufacturers are advised to communicate with Robert Burnett, Chief Fire Department, Ottawa, Ontario.

### Brazil Market Promising

**N**OVEMBER automobile orders in Rio de Janeiro, fell off when compared with the preceding month, although higher than November 1923, on account of money stringency and seasonal dullness. Great activity expected in the automobile market in December, January and February.

### India Tire Market Overloaded

**T**HE overcrowded tire market in Bombay is causing keen competition, necessitating competitive discounts and leaving little profit for agents and dealers. The leading tire companies agreed to issue net price lists for motor and truck tires as of October 1. These prices will be quoted in a separate circular.

### Automotive Exports Increasing

**T**HE total value of automotive exports from the United States during the first ten months this year has been \$185,443,098, as compared with approximately one hundred and seventy million dollars for the entire year 1923.

# Arcading Buildings to Provide Wider Streets Meets with Strong Opposition

*Expense less than building new thoroughfares in congested districts. National Highway Traffic Association discusses size and weight of trucks and tractors, police traffic bureau, compulsory automobile liability insurance and parking.*

**T**RAFFIC control is no longer merely a problem in individual and isolated cities. It has assumed proportions of State and national scope, and it is in these broad aspects that it was considered at the annual meeting of the National Highway Traffic Association, held in New York City, Dec. 2.

The problem resolves itself into a series of questions as to how to best handle traffic under existing conditions and how to prepare for the future. The most discussed problem at this meeting was that of increasing traffic capacity of present streets.

Arthur S. Tuttle, chief engineer, Board of Estimate and Apportionment, New York City, is in favor of arcading the buildings along Fifth Avenue and other similarly congested streets. The expense of this he estimated at between \$8,000,000 and \$12,000,000 per mile.

This plan was strongly opposed and led to considerable discussion. Where it has been tried it is said to have worked, but there was a considerable strength of feeling against it, at least for cities outside of New York.

George S. Pride, in a committee report, recommended that tractors, trailers and semi-trailers be limited in maximum height to 12 ft. 6 in., in maximum width to 96 in., in maximum length—tractor and semi-trailer—to 40 ft., and tractor and four-wheel trailer to 60 ft.

Further addresses by traffic experts covered the problems of under passages for pedestrians, fees for commercial vehicles, enforcement of traffic regulations, methods of forecasting future traffic, compulsory automobile liability insurance, and parking in congested streets.

In opening the meeting, David Beecroft, vice-president of the North Atlantic Division, called attention to the fact that the traffic control problem is being given serious consideration by State authorities.

## Dimensions Recommended

George H. Pride, chairman of the National Committee on Weights, Dimensions and Speeds of Tractors, Trailers and Semi-Trailers, made the following recommendations:

1. That maximum width be limited to 96 in. and maximum height to 12 ft. 6 in.
2. That maximum length of tractor and semi-trailer combined be limited to 40 ft. and of tractor and four-wheel trailer to 60 ft.
3. That the use of a four-wheel trailer behind a tractor and semi-trailer or of any trailer which has a tendency to weave, that is, to swerve alternately to right and left, be prohibited on account of the danger which their use involves.
4. That no maximum speed be stipulated, since there appears to be no cause for complaint on this score.
5. That no general maximum weight be stipulated, because of the wide divergence in State regulations in this

respect, but that the weight limitations be the same for trailers as for trucks with similar axle and tire equipment. Thus the limit for a four-wheel trailer would be the same as for a four-wheel truck having similar axle and tire equipment, while for a semi-trailer it would be the same as the permissible maximum for the rear wheels of a truck with similar axle and tires, namely, 80 per cent of the total allowable load for such truck, since the rear axle of a truck usually is designed to carry that percentage of the truck's total load.

6. That tractor and truck be considered as separate units in respect to load rating, as required in most States.

7. That special conditions be met, giving State officials authority to issue special licenses when the circumstances warrant.

Mr. Pride stated that this report is a majority and not a unanimous report of his committee. No minority report was submitted and the majority report was adopted for submission to mail vote of the Board of Directors of the association.

## Pedestrian Subways

In the absence of Deputy Commissioner G. C. Dillman of the Michigan State Highway Department, Prof. A. H. Blanchard, president of the association, spoke for him on the subject of "Pedestrian Subways Under State Highways." He pointed out the need for caring for pedestrian traffic across highways, but said that subways for pedestrians present serious problems in ventilation, lighting, drainage and policing, and asked for views of members in regard to the utility of such subways.

Several responses indicated that where such subways exist today they are not used and have involved drainage and other troubles. Others gave instances of extensive use, while still others said these subways would be used only if they save time or if fences are employed to prevent pedestrians from crossing at grade. It was suggested that most of the disadvantages of the subway are eliminated by the alternative overhead structure and that ramps are better than stairs.

In a talk on "Methods of Increasing Traffic Capacity of Streets," Arthur S. Tuttle cited police regulations, removal of encroachments, widening of streets and the construction of new streets and of by-pass streets as the chief methods. In outlying boroughs of New York City many new boulevards are planned or in process of construction, but in Manhattan such streets are considered prohibitive in cost.

Mr. Tuttle is much in favor of widening streets by eliminating present sidewalks and arcading the walks within the building line. This, he said, would cost, according to his estimates, from one-quarter to one-sixth as much as new streets. There was considerable adverse comment on this suggestion, some saying that setting the building front back had proved better in some cases,

others that streets which are widened do not increase traffic flow in proportion to the increased width, and still others indicating that elevated sidewalks might prove better than arcades.

### State Fees

In his paper on "State Fees for Commercial Motor Vehicle Private and Common Carriers," Arthur H. Blanchard, professor of highway engineering and transport, University of Michigan, pointed out that all charges against transportation agencies are eventually paid by the public. He discussed deliveries by vehicles owned and contracted for and by common carriers. He suggested that in the case of a small store as opposed to a large department store, or a dairy farmer who contracted for delivery of milk rather than hauling it himself, a tax on private and common carriers in excess of the amount charged an individual or corporation making deliveries in self-owned vehicles would be inequitable.

Professor Blanchard suggested further that charges could be made more equitably on ton-mile basis, passenger-mile basis or tire-mile basis. He cited the wide divergence that exists at present in methods of basing charges in the various States.

"Enforcement of Traffic Regulation by the Utilization of a Police Traffic Bureau" was discussed by Prof. Lewis W. McIntyre, Civil Engineering Department, University of Pittsburgh. He outlined a scheme by which the management of planning traffic control would be in the hands of engineers, and the control of traffic itself in the hands of a specially selected police body.

He pointed out that policemen and detectives taken from the regular force are accustomed to restrict criminal activity, and that their point of view is likely to be the same in handling traffic. His plan includes a traffic chief, who would cooperate with the chief of police, independent recruiting of traffic officers, and no transferring of men from regulation police service to traffic duty.

### Object of Traffic Control

Professor McIntyre said further that the duty of traffic policemen is to expedite traffic with safety, and suggested special traffic judges in sympathy with traffic problems, rather than ordinary police court judges or justices of the peace. He mentioned the signal tower system now in operation in New York and said that its possibilities have only been touched. Education, he added, is needed along with law and enforcement.

At the evening session, at which Arthur H. Blanchard, president of the National Highway Traffic Association, presided, Ernest P. Goodrich, vice-president, Technical Advisory Corporation, New York, outlined "Methods of Forecasting Future Traffic and the Saturation Point in the Utilization of Motor Vehicles." He pointed out that average mileage per hour has remained the same for ten years, that the saturation point curve follows a mathematical law, that traffic varies inversely with the length of trip, and that the average taxicab trip in New York is something less than one mile. He added that a width of 10 ft. per line of traffic is necessary and that only 37½ per cent of the traffic in Manhattan is moving at one time.

Pros and cons of compulsory liability automobile insurance was the subject of an address by Russell Huffman, secretary, Motor Vehicle Conference Committee, N. A. C. C. Figures on uncompensated loss, he stated, are available from only two States.

Massachusetts had an estimated loss in 1923 of \$7,000,000. Thirty per cent of the owners were insured, and 50 per cent of the loss went uncompensated. Ohio had an estimated loss of \$4,000,000, with 40 per cent

of the owners insured and 30 per cent of the loss uncompensated. New Jersey had an estimated loss of \$7,700,000, but had no figures as to the amount uncompensated or the number of vehicles insured.

In 1923, insurance companies paid indemnities of \$46,000,000, with a cost for investigation and litigation of about \$10,000,000. Their estimates show indemnity of \$200,000,000 would have been paid had every one of the five million owners been insured in that year with a cost of \$420,000,000 to the owners.

The Hoover Conference on Traffic Safety, according to Mr. Huffman, estimated a total loss due to accidents of \$600,000,000 for the year 1923, 85 per cent of which was due to motor vehicle accidents. They allowed an average of \$50 for property damage, \$175 for personal injury and \$5,000 for each life.

Approximately 16 per cent of all cars were insured against liability in 1923.

### Both Sides Agree on Compensation Feature

It is agreed that compulsory automobile liability insurance would provide compensation, but the Hoover Committee questions the advisability of including property damage insurance.

Of the two proposed plans for such insurance, one provides immediate compensation based on earning capacity of the individual injured, for which a State fund is suggested. The other provides that the injured party must bring an action, prove owner responsibility, obtain a judgment and eventually obtain compensation. Against this second plan is the argument that should a workman be injured his wife and children suffer while he is laid up, and it may take as long as three years to get compensation, of which the lawyers' fees amount to from 25 to 50 per cent.

In the discussion that followed Mr. Huffman's paper, T. D. Pratt, general manager, Motor Truck Association of America, stated that New York's law requiring taxicabs to carry insurance or be bonded is the only compulsory automobile liability insurance existing in this country. He stated that of the 22,000 taxicabs operating in New York and its environs, 6000 were uninsured and that the insurance rate had doubled since the law had gone into effect.

He pointed out that the mutual bonding companies formed to lessen this burden, or a similar one imposed by the regular bonding companies, have become insolvent, and that the 100 per cent assessment imposed on the mutual companies' stockholders has not been sufficient to pay the losses.

Parking problems were discussed by Prof. R. L. Morrison of the University of Michigan; C. A. Hirschberg, mechanical engineer; Ramp Buildings Corporation, New York, and C. M. McCreery, vice-president, the Six Wheel Company, Philadelphia.

Professor Morrison said that there are several kinds of parking; all day while the owner is in his office, part of the day while at theater, less time while shopping. Other people use a car frequently during the day; salesmen park them while traveling from building to building or town to town, and trucks must park while loading and delivering. He concluded that parking limited to two or three hours approaches the ideal, since short time parking means moving a car frequently and delaying traffic while moving out of and into the line of travel.

Mr. Hirschberg pointed out that cars not used because of a lack of parking facilities represent idle investment and told of the success of certain department stores in St. Louis and Cincinnati which have provided free parking in a nearby garage.

## Exports of Cars, Trucks and Tires for

COUNTRIES	GASOLINE PASSENGER CARS								TRUCKS						ELECTRIC VEHICLES	
	Up to \$500		\$500 to \$800		\$800 to \$2,000		Over \$2,000		Up to 1 ton incl.		1 to 2½ tons		Over 2½ tons			
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Austria					25	\$29,115										
Azores and Madeira Islands																
Belgium			59	\$48,226	75	97,779	3	\$8,436	2	\$446						
Bulgaria																
Czechoslovakia																
Denmark			8	6,308	31	36,510	4	15,141			1	\$1,182	1	\$1,091		
Estonia																
Finland	1	\$100														
France	1	500	1	861	13	16,048	1	4,000								
Germany	1	500	31	26,120	156	215,617	63	165,875			6	2,977	1	5,531		
Gibraltar																
Greece	6	2,424	32	24,200	27	34,427	3	9,200	2	995						
Hungary			2	1,504	2	2,066										
Iceland																
Italy	246	71,913	8	5,839	6	7,921	1	3,116	369	93,923						
Latvia																
Malta, Gozo and Cyprus Islands			2	1,148	2	2,479										
Netherlands			7	4,962	83	122,112	10	27,560	1	1,310	2	2,208				
Norway			6	4,472	3	3,043					1	1,162				
Poland and Danzig			6	4,234	1	1,221	1	2,500								
Portugal	3	1,404														
Rumania					9	10,777	1	3,152	4	2,000						
Russia	135	53,750														
Spain	65	33,548	140	111,166	151	196,037	13	43,511	32	16,097						
Sweden	5	1,550			78	95,944	2	5,000	13	12,085	2	2,457				
Switzerland			20	15,834	83	104,741	9	24,821	1	746						
Turkey					4	4,340										
England	1	400	387	305,178	173	219,510	20	53,273			2	3,168				
Scotland																
Ireland			2	1,041	13	15,133										
Yugoslavia, etc.	2	1,026														
United States																
Canada	174	41,146	149	105,023	492	589,168	43	115,999	21	17,288	57	86,278	3	4,908	5	\$7,967
British Honduras	1	354			1	1,000			1	347	1	1,219				
Costa Rica	1	1,463	14	9,404	5	6,551			2	816						
Guatemala	2	900	27	20,941	23	29,034			2	1,572	4	5,126				
Honduras	1	50							4	1,610						
Nicaragua	1	459	1	560	1	1,166					1	2,885				
Panama	6	2,446	17	12,390	37	42,470			6	2,626	4	2,001				
Salvador			4	3,444	29	36,296					1	3,204	1	5,555	11	13,932
Mexico	672	218,535	121	80,279	251	264,125	16	46,051	82	32,521	15	14,455	2	5,376		
Miquelon, Langley and St. Pierre									3	300						
Newfoundland and Labrador	2	863	1	868					1	500						
Barbados	5	1,940	1	624	3	3,192										
Jamaica	9	3,018	14	10,663	21	21,830			7	3,333	1	2,266				
Trinidad and Tobago	23	8,115	4	2,527					3	1,082	3	7,917	1	5,682		
Other British West Indies	8	2,230	1	800	1	1,049					1	1,977				
Cuba	514	164,040	173	108,890	106	126,882	22	75,856	125	27,781	10	17,166	2	7,497		
Dominican Republic	42	13,933	8	6,396	9	11,322	1	3,000	6	3,220						
Dutch West Indies	3	1,128	5	3,885	7	6,941			2	861						
French West Indies			1	861												
Haiti			11	7,584	12	12,434			4	1,688						
Virgin Islands	1	350	1	550												
Argentina	717	290,786	354	269,268	464	515,451	37	102,906	31	18,947	19	33,736	5	14,678		
Bolivia			4	3,072	3	3,658										
Brazil	305	100,387	182	126,165	172	197,770	24	66,161	812	208,550	1	1,050				
Chile	163	47,358	14	10,547	38	47,666	5	12,515	116	33,186	11	17,494	7	18,858		
Colombia	33	11,822	11	8,260	18	24,962	2	4,528	9	7,178	5	5,361	7	27,000		
Ecuador	7	2,769	4	3,002	4	5,465			22	9,520			1	4,372		
British Guiana			10	6,323	1	858										
Dutch Guiana																
French Guiana	1	364														
Paraguay	5	1,560							6	1,776						
Peru	70	29,809	58	40,031	57	75,449	6	19,810	111	42,154	14	23,258				
Uruguay	215	52,784	137	99,684	57	62,593	1	2,360	128	33,128	1	1,818				
Venezuela	64	26,604	43	34,066	42	52,438	4	10,051	33	15,380	6	7,433	2	10,632		
Aden																
Armenia and Kurdistan																
British India	16	7,878	102	78,564	50	56,975			19	15,013	9	13,104				
Ceylon			15	11,266	9	9,533			5	6,242	39	57,374				
Straits Settlements	24	11,204	26	20,621	33	36,912										
China	39	15,829	46	31,824	9	11,422	2	5,942	10	3,560						
Chosen			4	3,311												
Java and Madura	8	4,305	10	7,814	21	24,902										
Other Dutch East Indies			11	7,273	7	8,115					1	1,219				
French Indo China																
Hejaz, Arabia, etc.					1	1,708										
Hongkong			2	1,715	21	22,982	3	7,450	15	6,120						
Japan	8	2,140	41	25,940	73	79,213	5	13,710	2	900			1	1,581	1	2,000
Kwantung																
Palestine and Syria	81	24,030	44	32,969	11	14,077			1	660						
Persia	5	1,480														
Philippine Islands	130	54,388	15	13,011	44	56,065	1	2,750	111	40,840	10	20,006	3	7,768		
Russia																
Siam	2	909			4	3,630										
Turkey					1	1,406										
Australia	1,767	686,495	1,141	721,582	705	805,710	25	61,964	39	36,910	88	137,688	30	63,971		
British Oceania					4	4,253					1	1,841				
French Oceania	6	1,947									1	3,500				
New Zealand	159	76,570	23	16,921	99	118,562	13	36,987	15	14,048	26	30,481	7	22,138		
Other Oceania	4	1,650							1	600						
Abyssinia																
Belgian Congo	1	311														
British West Africa			6	4,900					5	2,902	68	69,964				
British South Africa	131	60,832	324	255,753	246	268,616	3	9,122	18	18,614	6	11,850				
British East Africa	6	2,906	3	2,658	15	17,308			2	1,235						
Canary Islands																

October, 1924

## Canadian Exports

ELECTRIC  
VEHICLES

Value

PARTS	TIRES						PASSENGER CARS						TRUCKS		PARTS	COUNTRIES	
	Casings		Inner		Solid		Up to \$500		\$500 to \$1,000		Over \$1,000						
	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.			Value
\$329	178	\$2,317	210	\$509													Austria
116																	Azores and Madeira Islands
220,406	2,688	33,180	1,685	3,160					4	\$2,936						\$1	Belgium
61	10	136	6	12													Bulgaria
6,556																	Czechoslovakia
418,016	6,416	73,583	7,294	10,710	108	\$3,698	50	\$16,413								14,216	Denmark
127	4	43															Estonia
1,484	162	2,615	75	143													Finland
86,417	334	5,492	43	135													France
17,797	292	4,802	202	462	8	187										62	Germany
1,092																	Gibraltar
9,786	824	11,278	843	1,327	248	9,285											Greece
95																	Hungary
184	20	260	20	35													Iceland
69,975	655	6,754	340	564													Italy
1,054																	Latvia
265	106	1,054	93	152			2	896	1	529							Malta, Gozo and Cyprus Islands
59,376	1,986	28,818	1,580	3,067	12	230										140	Netherlands
14,445	2,176	18,178	1,805	4,115	70	3,243										25	Norway
17,500																	Poland and Danzig
2,540	160	2,714	678	2,190	2	143											Portugal
2,919																	Rumania
19,379	600	8,724	1,200	1,800													Russia
80,180	1,251	16,615	1,178	2,642	220	5,262										19	Spain
44,766	3,101	39,094	2,695	4,343	2	162			1	947	7	\$8,753				62	Sweden
6,148	390	5,487	377	636					9	8,658	8	10,217					Switzerland
352	1	30															Turkey
295,256	15,319	163,136	5,802	10,728	3,422	62,559	10	4,477	232	205,699	138	221,399				11,101	England
2,314	583	6,240	373	591	42	1,177											Scotland
1,494	169	2,406	135	202													Ireland
36																	Yugoslavia, etc.
1,248,023	1,015	15,675	609	2,581	106	5,490	13	3,155	1	750				1	\$200	3,242	United States
346	17	128	31	29													Canada
2,979	196	3,066	148	259	14	264											British Honduras
5,260	219	3,052	414	777	1	22			2	1,928	1	1,311				90	Costa Rica
1,788	122	2,524	59	165													Guatemala
350	53	720	51	92	4	87											Honduras
7,140	604	10,028	951	1,968													Nicaragua
4,768	212	4,071	564	1,463	44	1,619								2	2,621		Panama
107,150	10,102	112,222	12,728	19,354	90	2,148										116	Salvador
																83	Mexico
936	82	646	140	213	2	68											Miquelon, Langley and St. Pierre
3,805	112	1,730	108	179													Newfoundland and Labrador
12,832	267	3,117	136	266	86	1,405	5	2,298	7	3,610	1	1,028	1	449		48	Barbados
2,986	290	4,453	172	342	42	1,060	3	1,316			1	1,316				47	Jamaica
2,896	176	1,980	200	695													Trinidad and Tobago
90,468	10,933	105,911	13,750	21,073	794	27,226										4	Other British West Indies
14,664	1,464	16,270	1,615	2,591	132	4,002	5	2,061	2	1,313						4	Cuba
1,734	211	1,963	349	495					1	567	1	1,174					Dominican Republic
1,064	12	121	1	2													Dutch West Indies
9,459	359	4,674	583	984													French West Indies
356	10	95	36	61			4	1,724									Haiti
840,596	21,531	233,090	12,413	22,331	355	10,151	69	28,848	93	56,826	62	73,617				38,840	Virgin Islands
4,688	54	944	64	162					1	964							Argentina
526,264	7,261	59,103	6,069	6,604	82	2,153	9	3,994	61	51,647	18	19,725					Bolivia
42,853	1,091	16,899	620	1,556	116	2,746											Brazil
27,711	817	15,269	1,035	2,406	31	1,235			2	1,580							Chile
5,076	94	1,814	52	125					2	1,650	3	3,932					Colombia
1,422									3	1,515							Ecuador
218	26	259	76	105													British Guiana
576																	Dutch Guiana
407	47	763															French Guiana
54,180	2,166	38,849	2,182	5,400	81	3,179	22	10,318	1	658							Paraguay
38,291	1,244	13,013	551	839			20	9,235	2	1,388							Peru
17,448	1,635	25,400	1,882	3,842			3	1,269	6	3,371							Uruguay
141	66	517	80	105													Venezuela
343			45	45													Aden
40,952	1,240	15,103	443	808	65	1,301	320	110,686	32	18,724	2	2,607	158	55,307	24,172		Armenia and Kurdistan
6,819	342	4,934	187	322	15	285	16	7,218	7	5,401							British India
27,248	1,830	17,960	2,066	3,082	242	5,363	157	58,223	7	4,231							Ceylon
17,802	758	7,150	72	130	42	747	4	1,749	2	1,309							Straits Settlements
2,775																	China
18,830	3,475	38,959	853	1,824	198	5,740	178	56,617	8	4,320							Chosen
2,999	45	599	42	46													Java and Madura
620																	Other Dutch East Indies
1,904	65	710	100	116													French Indo China
6,187	154	1,960	210	241	6	93	2	849									Hejaz, Arabia, etc.
51,327	4,834	44,138	3,609	5,519	124	2,247	10	4,169	28	15,486							Hongkong
103																	Japan
12,583	320	5,370	649	3,258					2	1,003							Kwantung
40,217	2,994	30,377	2,855	4,660	240	6,121	2	888	2	1,142							Palestine and Syria
313	12	221	24	81													Persia
																	Philippine Islands
250,703	6,193	97,856	5,015	11,072	289	9,652	436	124,844									Russia
431									5	1,518	1	520					Siam
1,741	7	172	4	11	4	111											Turkey
88,509	2,838	46,675	1,836	4,445	514	16,853	731	258,151									Australia
628	56	805	26	45	6	184	8	2,336									

# How Insurance Hazards Can Be Reduced or Controlled by Design Engineers

*Features of design and items of equipment which tend to prevent risks of theft, danger of fire and minimize damage in case of collision. Work of Underwriters' Laboratories on safety equipment.*

By C. R. Alling\*

THE insurable hazards of an automobile are readily segregated into five classes—Fire, theft, collision, property damage and public liability. Each of these hazards has been a source of constant study on the part of the insurance underwriter.

Insurance rates are in the main predicated on field experience, although in the early days, when no experience was to be had, rates were based to a considerable extent on guess work. For example, the first fire insurance rates on automobiles were based on the horsepower of the car. This method of rating was unsatisfactory, as the fire loss records then available did not show the predicted results—that the greater the horsepower the lesser the chances of fires occurring. The companies thereupon decided that a truer measure of the relative fire hazards of automobiles could be determined by the list price method.

This method of determining upon rates was followed for several years, but experience soon developed the fact that some car manufacturers could obtain a much lower rate for the users of their product by varying the list price. For example, at that time a change in rates was made at \$1,800; a car received a much lower rate if selling at \$1,805 than if the list price were \$1,795. Some manufacturers, having knowledge of this condition, conceived the idea of adding the freight charges to the factory cost and calling this figure the list price. When the insurance companies determined that the list price at the factory should be the governing factor, car manufacturers found a way round this ruling by including, say, a bumper, selling for \$20 to \$30, as standard equipment, thus bringing the list price above \$1,800.

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**"Of the cars equipped with transmission locks in the larger cities 80 per cent are left unattended without the key being turned."**

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These unsatisfactory conditions finally resulted in the insurance interests requesting Underwriters' Laboratories to develop a schedule for the classification of automobiles with respect to fire, theft and collision hazards. It was in this way that the Underwriters' Laboratories became interested in automobile fire insurance problems.

The inherent fire hazards of an automobile can be readily segregated into three phases: (1) The fuel feed

system, including the fuel tank, fuel line, and carbureter; (2) the electrical system, and (3) the exhaust system.

Gasoline is the fuel most commonly used for the propulsion of cars and, as the experience of fire protection engineers has shown the hazards involved in the use of gasoline, it is a fairly simple matter to determine the precautions which should be observed in the construction of the fuel feed system. Unconfined gasoline may be readily ignited by a spark or flame in its liquid state, and its vapor is explosive when the vapor-air mixture ranges from 1½ to 6 per cent.

## Danger of Fuel Tank Exploding

It seems to be a general impression that one of the principal hazards involved in the use of an automobile is the danger of explosion of the fuel tank. Newspapers almost daily give extended accounts of fires claimed to have been caused by automobile gasoline tank explosions. Investigations have shown that the explosions of automobile fuel tanks rarely, if ever, occur, for the reason that it is practically impossible, except in very isolated cases, to obtain an explosive mixture of the vapor above the fuel in the tank.

Many fires do occur as a result of carelessness in the use of flame at the fill opening or because of static sparks. Fires are a natural result, but explosions are not. It will, therefore, be seen that the explosion hazard is remote. For this reason the many patented anti-explosion fill caps now on the market have but little merit when the explosion hazard is considered. They do have a useful purpose in permitting free venting of the tank during filling operations and in preventing spillage of the gasoline.

In the consideration of the fuel system from the fire hazard point of view there are many items which may, in themselves, appear of but minor importance, but when considered in relation to the car as a whole have a serious bearing on the prevention of fires. The automobile underwriter naturally looks with favor on the fuel pump and vacuum systems of feeding gasoline to the carbureter as compared with the gravity system. The reason is obvious.

With a fuel pump or vacuum system, the amount of gasoline discharged in the event of a leaky carbureter will be measurably less than with a gravity system, where the entire contents of the tank will discharge to the floor of a garage in the event of a leaky carbureter or fittings. Further, with a fuel pump or vacuum system, it is possible to maintain the fuel supply in the rear of the car, where, in the event of a fire in the engine compartment, the supply is not likely to become ignited.

While the ideal location of the vacuum tank from the fire hazard point of view would be outside of the engine compartment, the automobile underwriter recognizes that the millennium has not arrived, so does not attempt to urge his views on this subject onto the car manufacturer.

\*Digest of a paper read before the Dayton, Ohio, Section Meeting of the S. A. E.

Backfiring in the carbureter formerly was a prolific source of fires, but the present practice of preheating the intake air has resulted in reducing this hazard to a minimum. In the event of a carbureter backfire with many of the present types of air horns, the flame is dissipated before reaching the engine compartment. If the engine compartment were kept scrupulously clean of oil, grease and gasoline, the fire risks at this point would be materially reduced, but this cannot be expected from the average American driver, and it is, therefore, essential that the car designer do everything in his power to keep sparks and flame from the engine compartment.

#### Eliminating Gasoline Leakage

Factors that must be considered if gasoline leakage is to be eliminated include the following: The fuel tank should be of heavy section and so supported that the wearing of the car will not cause undue strains and subsequent leakage. The fuel line should be rigidly supported to prevent chafing as a result of excess vibration and the connector fittings of such design that the tubing will not fracture under automobile vibration conditions.

Field experience has shown that it is as necessary to employ good electrical engineering practice in the construction of the low voltage electrical equipment of the car as in the case of house lighting equipment. Suitable insulation should be used, and the wires should be secured in position so that chafing cannot occur as a result of excess vibration. Electrical units should be so designed that short circuits will not occur. The wire should be supported so as to avoid contact with oil, grease or gasoline, all of which has a deleterious effect on the insulation material.

The desirability of employing fused circuits is unquestioned. If splices are necessary they should be properly protected. The starting, lighting and ignition units should be so designed that there will be no exposed live parts. The careless use of a screw driver or dropping of an oil can has been known to start a fire when contact was made with live metal parts.

The exhaust system hazards include consideration of the location of the exhaust line and muffler with respect to combustible material, possibility of backfires occurring which may cause muffler explosions, with the attendant fire hazard of rupture of the muffler, and ignition of combustible material from the flame in the exhaust. Further, the increasing use of exhaust heaters calls attention to the dangers of fires occurring as a result of improper design and installation of these units.

#### Exhaust Pipe Location

While muffler cutouts may be of value from a service standpoint, they add to the fire risk because of the danger of flame or sparks igniting combustible material on the car itself or gasoline on the floor of the garage. The exhaust pipe should be so located that it will not be exposed to drippings of gasoline from a leaky carbureter or vacuum tank.

Thefts of automobiles have become one of the principal problems of the insurance companies. At the present time the latter are giving a 15 per cent reduction in the theft insurance rate for any automobile lock installed on the car which is used as accessory equipment and a further preferential of 5 per cent if such a lock, listed by Underwriters' Laboratories, is installed as standard equipment by the car manufacturers at the factory. Before locks are listed by Underwriters' Laboratories they must undergo an extensive series of tests designed to bring out the theft resistance and the accident hazard relating to their use.

As a matter of history, locking devices were first developed about ten years ago, to stop the joy rider, statis-

tics at that time showing that approximately 95 per cent of the cars stolen when left unattended were taken by the joy rider. The ordinary ignition switch employed by manufacturers of the more expensive cars was fairly efficient in preventing joy riding, but there remained the greater problem of preventing the theft of Ford cars. The locks for Fords at that time took the form of ignition locks designed to protect the ignition switch on the coil box.

After several years it was found that the stealing of automobiles for resale had become a profession. As a consequence, the standards of Underwriters' Laboratories were raised to require more adequate theft resistance. It was found that for Fords ignition locks could not give the necessary theft resistance. Steering system locks were

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"Many cars in use today are so designed that the accelerator may be accidentally operated when the service brake is used hurriedly."

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then developed and so far are the only practical lock for the prevention of thefts of Ford cars.

An investigation of the use of transmission locks in a number of larger cities of the country during the past year has shown that over 80 per cent of the transmission locks are not locked when the car is left unattended. As a result of this the insurance companies requested Underwriters' Laboratories to develop a lock that would make it necessary for the driver to lock his car when leaving it unattended. The so-called coincidental lock is the logical outcome of this demand.

The ignition switch is the only device which is always used by the car driver in stopping his engine. Is it not, therefore, most logical so to construct a locking mechanism that this operation locks the car, as well as stops the engine? It is difficult to conceive of any practical substitute for this coincidental locking which will accomplish the same object.

The coincidental lock will not increase the accident hazard of the car on which it is installed. Many theoretical objections have been raised. It has been stated that the stalling of the motor on a railroad track or shorting of an ignition circuit would automatically lock the car and thus increase the accident hazard. This is not so. Underwriters' Laboratories will not recognize a mechanism open to this objection. If the motor should stall under the foregoing condition it would only be necessary to operate the starter in the same manner as with a car not equipped with a coincidental lock.

Only three objections have been raised which are deserving of any serious consideration:

1. It is said that a car locked with a coincidental lock cannot be moved by the fire department.

A survey of the ordinances of the various cities in this country shows that in many instances there are ordinances requiring the locking of cars when left unattended on the streets of the city. In no case is there an ordinance which will prohibit the use of any steering system lock now listed by Underwriters' Laboratories. A car equipped with a listed type of steering system lock can be moved a reasonable distance in the case of necessity. Similarly, a car equipped with a coincidental lock can be moved in the same manner.

For example, in Chicago, parking of cars is entirely prohibited in certain congested districts where the problem of mobility of fire apparatus is of vital importance. The objections of fire officials are not directed against the locking of cars in congested districts. The objections are directed against the parking of cars, whether locked or unlocked. This objection, therefore, applies to any car whether equipped with a lock or not.

2. It is claimed that the use of a coincidental lock on a car left in a public garage will interfere with the maneuvering of the car when necessary by the garage owner or the removal of cars in that garage in the case of fire.

This claim is not in accordance with facts. It is possible with the types of coincidental locks which Underwriters' Laboratories will recognize to leave the key in the car, as is now ordinarily done with other types of locks. Insurance companies make no conditions respecting locking of cars in public garages.

3. It is claimed that the use of a coincidental lock of the steering system type will prevent shutting off the ignition when coasting down a hill and thus increase the accident hazard because of the possible increased speed due to the motor being operated under these conditions.

### Shutting Off Ignition

Shutting off the ignition when coasting down a hill is an undesirable practice. The instruction books of a number of car manufacturers advise against the opening of the ignition circuit under such conditions. It is well recognized in the automobile industry that this practice leads to fouling of the motor, dilution of the oil in the crankcase and backfire and possible failure of the muffler.

When this criticism was first raised, Underwriters' Laboratories corresponded with the National Bureau of Casualty and Surety Underwriters, National Safety Council, and other officials interested primarily in the reduction of accidents on the road. Without exception the replies received indicated that it was very doubtful if there would be any added risk from this cause. Driving tests have shown that even on steep hills the speed of the car is not seriously increased by the closing of the ignition circuit.

A study of driving hazards shows that the use of a lock of this type on a hill will reduce the possibility of accidents occurring. It is recognized that to maintain full control of the car under all conditions of driving, the engine should be under control. This can only be accomplished with the ignition on.

It cannot be expected that the time will ever come when the profession of stealing will be passé, and for this reason the next great problem is to prevent the resale of cars after they have been stolen. Certificate of title laws and prompt and adequate punishment of offenders will aid in preventing the sale of stolen cars. One safeguard can still be employed by the car manufacturer in making the resale of automobiles an unprofitable profession. If the car manufacturers will number the frames and engine blocks in such a manner that the numbers cannot be destroyed or changed without leaving evidence of tampering, the automobile thief will be foiled.

### Collision Insurance Rates

Collision and property damage insurance rates are today based on the losses which companies have sustained, consequently any safeguards which can be installed on a car to reduce the possibility of collisions occurring will be reflected later in collision insurance rates.

The braking system should be adequate to permit complete control of the car. There is no question but that if the stopping distance of the car can be lessened, the danger of collision with objects ahead will be reduced.

Women have not the physical strength of men and the effort required to operate the braking system should be given consideration. Fouling of the linings by lubrication should be prevented.

If the clutch and brake pedals are not protected against foot slip, accidents can occur. Further, many cars in use today are designed so that the accelerator may be accidentally operated when the driver finds it necessary to use the service brake quickly.

Steering systems which lack positive fastenings and the irreversible feature, which latter reduces the possibility of control of the steering wheel when driving over rough roads, adds to the danger of collision. Heavy windshield and frame supporting sections at the left front end of the body interfere with driver's vision. Consideration must be given by lighting engineers to the development of lighting apparatus which will prevent glare in the faces of oncoming drivers, particularly under adverse weather conditions.

In order to minimize danger in the event of collision, several safeguards are ordinarily employed. With substantial front cross frame braces the possibility of damage to the radiator and the front end of the car is reduced. With the use of a suitably designed bumper, the impact in the event of collision is transmitted to the bumper rather than to the car, and in this way the effect of the collision on the car itself is minimized. Fenders of the seamless form made in one piece and not projecting beyond the tire are less likely to be damaged in the event of collision and, if damaged, can be replaced with less cost to the user.

From an automobile design viewpoint, property damage and public liability hazards are synonymous with the collision hazards.

### Illuminating Roads at Night

**I**LLUMINATION of heavily-traveled roads to facilitate night movement of heavy traffic, restriction of property development at street and highway intersections to safeguard the vision of drivers, and other problems were discussed at a meeting of the Committee on Highway Engineering of the Joint Conference on Street and Highway Safety which, under the leadership of Secretary of Commerce Hoover, is working on plans to lessen traffic accidents.

It was reported that California is planning a highway lighting system for the route between Los Angeles and San Francisco, while legislation is about to be introduced in Washington and Oregon providing for illumination of highways to increase safety. California's plan, it was explained, has for its aim the diversion of much commercial truck traffic from day to night. Michigan, which three years ago had no highway illumination, leads the other States in this respect today.

Standards of lighting, both for the volume of light and from the standpoint of expense, were discussed. To provide for the reconstruction of obsolete types of "high crown" roads, to obtain adequate rights of way for future expansion, to improve the safeguards at curves and grades, to eliminate grade crossings and one-way bridges and to increase the maximum carrying capacity of existing roads is a huge problem.

Several of the committee of experts which are working on the traffic problem are studying the parking problem and the construction of turn-outs for highways as a remedy for parking on surfaced roads. It is expected that the report of this committee will be completed within a few weeks.

# EDITORIAL

## Lighter Bodies

WE hear talk of lighter bodies for passenger cars, but there appears to be great inertia against any breaking away from the general type of construction common in carriage days, at least as far as the frame of bodies is concerned. Steel has been substituted for wood in panel construction, but aside from this our practice does not differ much from that used by the carriage maker twenty years ago, while the average body of today probably is heavier than the average he built. It is admitted that service conditions are more rigorous in some respects, but this is not a satisfactory reason for failing to develop a better and lighter body than we had a generation ago.

Necessity compelled the aircraft designer to develop new and lighter structures, but there has been no similar incentive for the body designer. For the most part he has been content to let well enough alone, so far as most important structural features are concerned, and has concentrated on securing designs which are pleasing to the eye and comfortable for the passengers. This has been an important activity but indicates an apparent lack of desire for radical improvement in body structure.

Generally speaking, passenger car body shells have or need have little to do beyond supporting their own weight and forming a durable, comparatively light and approximately weather tight inclosure for protection of the passengers. Viewed in this light it is apparent that there is something anomalous in a structure which often weighs several times as much as the passenger load it is intended to carry, especially when a lighter body makes possible a lighter chassis and should help to make a vehicle which is cheaper to build and more economical to operate.

Some progressive body builder who is willing to spend some money in research directed toward the design of lighter yet durable bodies seems likely to reap a rich reward if his investigations are successful.

## Tradition as a Factor in Design

EVER since internal combustion engines were first built, the bearing at the flywheel end has been made longer (and sometimes larger in diameter) than any other main bearing on the crankshaft. In the early engines, which were generally of the single cylinder, low speed type, this practice was undoubtedly justified by the great weight of the flywheel which had to be fitted, and by the belt pull, which in many cases added materially to the load which the rear bearing had to carry.

In an automotive engine the weight of the flywheel and clutch generally is only a small fraction of the

forces due to the explosion and to the inertia of the reciprocating parts, so that the former is really a negligible factor in determining the necessary dimensions of the rear main bearing. There is no appreciable reaction on this bearing due to the tooth pressure on the constant mesh pinion in the transmission. On the other hand, in a four, six or eight cylinder engine the reciprocating parts of the two cylinders on opposite sides of the central bearing move up and down together, with the result that the load on this bearing due to inertia forces is twice as great as the same load on the end bearings.

A careful analysis of the bearing loads will show that the load on the center bearing is always considerably greater than that on the end bearings, whether we figure with the maximum instantaneous load or the mean load throughout the cycle, and even if the weight of the flywheel and clutch are considered. Although in recent years the relative length of the center bearing has been materially increased, the rear bearing is still made longer, as a rule.

The only explanation seems to be that tradition is still a powerful factor in design and that, although we like to make theoretical analyses of the forces we have to deal with, we do not fully trust the results of these analyses.

## Welded Frames

AUTOMOBILE men whose memory of developments in the industry goes back some 18 or 20 years will remember that at one of the early shows in Madison Square Garden an importer of a French car exhibited a chassis frame in a single piece and offered a big prize to any American firm that could duplicate it within a certain time limit.

The whole frame was nicely polished, and there was absolutely no evidence of any joints, but it came out later that the members had been joined by the new process of autogenous welding or acetylene welding, which had been brought to a practical state in France only quite recently.

At recent shows in London and Paris a number of welded chassis frames were exhibited, and there appears to be a possibility of this method of frame construction coming into practical use now. Not only the acetylene welding process but also various electric welding processes are available now for doing the work, and the only question is whether a welded joint is superior to the riveted joint, considering cost of production, weight of frame and strength and durability of the joint.

It is possible that the welded frame would show an advantage, but considering the cost of cleaning the welded joints it is hardly likely that there is much choice between the two constructions.

# Our Industry Today—

## *Plant Activities to Be Resumed on a Large Scale in January—Business Stimulated by Price Cuts and Closed Car Demand*

NEW YORK, Dec. 8—January will see activities in automobile manufacturing plants resumed on a large scale. This will be accompanied by increased orders of parts for original equipment and of material entering into the production of cars. The first quarter of next year from the present outlook should closely parallel the marks for the corresponding period this year if it does not exceed them.

The decline in production during November, to be followed by relatively light operations this month, are important factors in paving the way for high programs beginning with the opening of the show season in January. Winter business may be stimulated by recent price reductions made in some lines, although there is no likelihood that these reductions will be followed generally throughout the industry. The revisions to a large extent affect prices of closed models. Further stimulus to buying will result from the automobile shows which will be held in practically every city of size after the beginning of the year.

Manufacturers are now centering production activities on closed models. While this type of car has developed a strong demand the year round, its greatest popularity comes in the winter months. Comparatively little effort will be expended for the next few months on open models, although some of this type will be turned out to meet local conditions and export demand.

### **Body Making Facilities Expanded**

Body making facilities have been expanded in large measure during the last twelve months, but nevertheless should the rush of business now anticipated develop in the first quarter there may be a shortage of cars. The possibility of such a condition lies in the present depleted stocks in the hands of dealer and producer and the disposition on the part of the latter not to go beyond current demand in defining operating schedules.

Although sales are slow throughout the country at the present time and no increase is expected to come this month, encouragement is given by the inquiring mood displayed by prospective farmer buyers. Farmers in the Northwest particularly are showing an interest not hitherto evident. Profits from the large crops of the past season are being used to liquidate debts, but every indication points to the expenditure of whatever balance remains on motor vehicles, not only for the personal use of the farmer, but for farm purposes. Through the failure of the farmer to buy much equipment for a year at least, his needs stands out prominently.

Christmas sales are expected to run along normal lines, which will keep up the sales curve for the month.

## **Changes in Financing Adopted in Chicago**

### **New Principles Affecting Automobile Sales to Become Effective Early Next Year**

CHICAGO, Dec. 10—Recommendation of the observance of several fundamental principles on the part of financing companies and bonding organizations, guaranteeing automobile retail paper, was embodied in resolutions adopted today at a meeting at the LaSalle Hotel.

Attending the meeting were 600 representatives of automobile financing companies from all sections of the United States, as well as more than 40 representatives of large banking institutions. It was estimated that the attendance of financing companies represented more than 90 per cent of the country's total capitalization in this business.

Spokesmen for automobile manufacturing interests who participated in the discussions let it be known that their respective companies are in full accord and sympathy with the purpose of the gathering, which primarily is to set in motion a movement through which more conservative crediting by the finance companies and automobile dealers may be realized.

Alfred H. Swayne, vice-president of General Motors Corp., talked on behalf of the manufacturers. He appeared before the meeting as chairman of the National Automobile Chamber of Commerce committee which is making a study of the financing proposition. He stated that the committee is not prepared to declare itself in favor of any set principles looking to the correction of crediting evils, but that in a general way it was sympathetic with the movement and any effort that might be productive of better and safer merchandising methods on the part of the automobile retailer.

R. J. Fry, assistant secretary of Dodge Brothers, assured the gathering that his organization heartily approved of its purposes. Arthur H. Morris spoke on behalf of the Industrial Finance Co.,

the Studebaker financing organization, while C. C. Cooper, president of the General Motors Acceptance Corp., offered some pointed suggestions.

The resolutions adopted will become effective on or before Feb. 1, 1925, east of the Rocky Mountains and as soon thereafter as may be feasible west of the Rockies. The outstanding features are as follows:

On monthly instalment paper covering new passenger cars, the maximum maturity of such papers shall not exceed 12 months, payable in equal monthly instalments.

On monthly instalment paper covering used passenger cars, the minimum down payment by purchasers shall not be less than either 40 per cent of the cash or 37 per cent of the time selling price at point of delivery, including accessories and equipment, with a maximum maturity of 12 months payable in equal monthly instalments.

That all manufacturers and distributors of and dealers in passenger cars be and they are hereby requested to cooperate in a sincere endeavor to confine the sale of new and used passenger cars for individual use within the aforesaid limitations, in order to continue to keep the manufacturer, distribution and retail financing of passenger automobiles upon time upon a safe and sound basis.

A resolution on taxicabs and trucks reads:

Inasmuch as the total volume of taxicab and truck business is comparatively small, the committees of finance companies and bankers have not attempted to make any suggestions at this time as to the terms of payment on taxicabs or trucks of any description. This does not imply that any smaller down payment or longer term of payment should be recommended than in the case of passenger cars.

### **Resolution on Down Payment**

Another resolution affecting the down payment was offered, but was laid aside until tomorrow's session. This provides that the minimum down payment by car purchasers shall not be less than either one-third of the cash or 30 per cent of the time selling price at point of delivery, including accessories and equipment.

The delegates were invited to be guests of the Central Automobile Finance Association of Chicago at banquets Thursday and Friday for the purpose of renewing discussions and proceeding with the perfection of a national association.

## **Shaw Named Receiver for Earl Motors, Inc.**

DETROIT, Dec. 10—Frank B. Shaw of Jackson has been appointed receiver for Earl Motors, Inc., to act with the Detroit Fidelity & Surety Co. Mr. Shaw, whose appointment has been approved in the State courts, will proceed immediately to the administration of the company's affairs.

Action for the naming of a receiver was brought by the Jackson City Bank.

## Truck Makers Decide to Meet at Plants

Monthly Gatherings to Be Held in  
Rotation, Beginning at  
Lima, Ohio

DETROIT, Dec. 10—Monthly meetings of Motor Truck Industries, Inc., will be held in the future at the plants of its members in regular rotation. The first meeting under the new plan will take place at the plant of the Garford Motor Truck Co., Lima, Ohio, on Jan. 14.

More than 50 factories will be covered in the rotation of meetings, these extending as far west as the Moreland Motor Truck Co., Los Angeles, and as far east as the Spicer Manufacturing Corp., Plainfield, N. J.

The purpose of the rotation, which will include not only the truck manufacturing members' plants, but also the unit parts makers, is to unite the organization on the strongest possible basis and to make all members acquainted with plants and the processes used by each.

Greater cooperation can be worked out through visiting each member this way, the association feels, and opportunity will be given all to profit by the experiences of each member in all branches of his business.

The place of each regular meeting will be selected by the directors at their monthly meetings.

## Import Tariff Revision Predicted in Germany

WASHINGTON, Dec. 10—An early revision of the German import tariffs affecting automobiles is predicted by Charles E. Herring, commercial attache at Berlin, who has cabled the automotive division of the Department of Commerce that the German automobile industry's influence over the government appears to be weakening. His cable, dated Nov. 27, follows:

The powerful influence of the German automobile industry over the government now appears to be waning. Their influence, heretofore, through the rigid system of licensing, has reduced the sales of American cars to a minimum. It is now possible, however, that the combined influence of the dealers, who are almost unanimous in favor of permitting foreign imports, and of a part of the consuming class, notably agriculture, may result in a reasonable tariff duty on automobiles.

Although the adoption of new duties on automobiles and other products is now delayed by the absence of a reichstag, the economic council has approved partial tariff revisions, almost exclusively upward, and it is possible, though not probable, that new rates which affect automobiles will be provisionally adopted.

### BUYS COLUMBIA INVENTORY

DETROIT, Dec. 11—William Kueheman, Jr., has bought the inventory of the former Columbia Motors Co. at auction sale and will make up cars in working this off.

## Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

Further gains in trade and industrial activity were noted last week, together with a continuation of the active trading in securities. Most retail lines are feeling the stimulus of holiday buying. On the Stock Exchange last week's transactions totaled 11,452,515 shares, comparing with 6,092,632 a year ago.

A preliminary estimate places this year's cotton crop at 13,153,000 bales, which, at the average farm price of 22.6 cents a pound on Dec. 1, gives the crop a total value of about \$1,650,000,000. In point of value, this is the fifth largest crop in the history of the country. Ginnings prior to Dec. 1 totaled 12,225,000 bales, as against 9,243,000 in the corresponding period last year and 9,318,000 two years ago.

Car loadings in the week ended Nov. 22 numbered 1,010,122, comparing with 1,015,704 in the preceding week and 990,299 in the corresponding period last year, and setting a new seasonal high record. Net operating income of Class 1 railroads in October was \$127,105,100, representing an annual return of 5.91 per cent on the tentative valuation. The October total is the largest since August, 1918.

The production of pig iron in November amounted to 2,509,673 tons, comparing with 2,477,127 tons in October and 2,894,295 in November last year. The average daily output was 83,656 tons, as against 79,907 in the preceding month and 96,476 a year earlier. The production of steel ingots, amounting to 3,107,226 tons, was slightly smaller than the 3,111,452 tons produced in October, on account of the smaller number of working days. The daily average of 124,289 tons compares with 115,239 in October, and is the largest since last April.

The production of crude petroleum increased again in the week ended Nov. 29, averaging 1,975,800 barrels a day, as against 1,963,600 in the preceding week and 2,083,000 a year ago.

Fisher's index of wholesale commodity prices stood at 154.6 last week, comparing with 154.4 in the preceding week and 154.8 two weeks before. Dun's wholesale commodity price index on Dec. 1 shows a rise of 2 1/4 per cent and Bradstreet's index an advance of 1 1/3 per cent for November.

## Petroleum Institute Discusses Motor Fuel

John Warner of the S. A. E. Says  
Power Availability Is a  
Prime Factor

FORT WORTH, TEX., Dec. 10—The fifth annual meeting of the American Petroleum Institute was attended by a large gathering from all parts of the country. All phases of the industry were represented. Of greatest interest to the automotive fraternity were the papers on motor fuel and lubrication.

H. K. Griffin presented the Dickinson and Sparrow paper reporting on Bureau of Standards tests under the cooperative fuel research program.

Mentioned as fruits of the work of the past year were the development of a satisfactory method for measuring dilution, a more reasonable explanation of the causes of dilution and much additional information on factors influencing dilution.

### Transition Method Development

Mr. Griffin also presented a paper reporting the development of the "transition" method of dilution measurement, which gives much more accurate and dependable results than are obtained under other methods. This method is based on the assumption that an abrupt change takes place in the properties of hydrocarbon compounds of the diluent as it enters the oil.

Neil MacCoull of the Texas Co. discussed fuel utilization and engine lubrication. He said that the price of gasoline depends upon the amount of fuel obtainable from a barrel of crude, which amount has increased during recent years by development of the cracking process and by cutting deeper into the crude.

He stated that it is possible to bring about equal detonation suppression by introduction into the fuel charge of 50 per cent of water, 12 per cent of benzol or one-twentieth of 1 per cent of tetra ethyl lead.

A spring loaded constant pressure regulating valve, said Mr. MacCoull, defeats the real purpose of pressure lubrication, since the least oil is circulated when most is needed. He advocates replacing such a valve by a constant volume control using suitable orifices.

### Winter Fuel for Cold Climates

John Warner, manager of the research department of the Society of Automotive Engineers, in discussing automotive fuel observations, showed that cooperative road tests made in winter had demonstrated that power availability is a prime factor.

Mr. Warner also reported that the Bureau of Standards tests of fuel dopes show no appreciable increase in power or improvement in fuel consumption so long as no detonation occurs when using untreated gasoline.

## \$5,000,000 in Orders Placed by Gardner

Cleveland Parts and Accessory  
Industry Given Boost During  
a Three-Day Visit

CLEVELAND, Dec. 10—Russell E. Gardner, president of the Gardner Motor Co., acted as advance agent of prosperity for the Cleveland automobile parts and accessory industry when he slipped into the city last week, remained here three days and departed after placing orders for supplies ranging from windshields to bodies, the total approximating a value of \$5,000,000.

"That should indicate that the Gardner company is not burdened with a heavy inventory," Mr. Gardner said, "and I feel that the experiences that followed the war have caused the average manufacturer of automobiles to so conduct his business that he is not today swamped by an inventory.

Mr. Gardner made no announcement of his manufacturing program for the ensuing year. He said that the company is in excellent financial position and referred to the balance sheet for September, which showed a cash balance of \$500,000, with no bonded indebtedness, commercial debts or bank loans and with current assets standing 20 to one, as compared with current liabilities.

## M. A. M. A. Opens First Credit Branch in Detroit

NEW YORK, Dec. 10—The first branch office to be established by the credit department of the Motor and Accessory Manufacturers Association will be opened in Room 2125, First National Bank Building, Detroit, the latter part of this month. H. J. Quirk will be in charge.

Mr. Quirk, who was formerly assistant treasurer of the Standard Steel & Bearings Co., Inc., a subsidiary of the Marlin-Rockwell Corp. of New York, has had long experience with credits both among manufacturers and jobbers.

The branch office has been opened for the convenience of members in the Detroit territory and to help collect and disseminate credit information more quickly.

## LINCOLN SALES GAIN

DETROIT, Dec. 10—Preliminary figures place Ford Motor Co. production in November at 128,000 cars and trucks, compared with 166,500 in November of last year. Tractor output reached 5300, as against 7342 a year ago. Sales of tractors for 11 months of this year aggregate 77,881. November sales of Lincoln cars totaled 534, compared with 515 in November of 1922. Retail deliveries of cars and trucks did not reach the Oc-

## FREIGHT RATES CUT 5 CENTS TO 4 PORTS

TORONTO, Dec. 10—During 1925 automobile shipments to Antwerp and Rotterdam will be made at rates of 20 cents per cubic foot, and 22½ cents per cubic foot to Hamburg and Bremen, according to a special conference contract worked out by the North Atlantic Continent Conference. The contract does not apply to automotive accessories or equipment. This is a reduction of 5 cents per cubic foot from the rates in effect during 1924.

Shippers are to have the privilege of using any sailing of any of the lines of the conference, which includes practically every steamship company going to these ports, but all shipments must be made on these lines. The open rates are to be 5 cents per cubic foot higher.

Arrangements for the adoption of the contract were completed and announced at a meeting held in this city.

tober figure during November, but were well above the 100,000 mark.

## New Company to Finance Bus Equipment Purchases

RICHMOND, VA., Dec. 10—A charter has been granted here to the Transit Finance Corp., capital \$1,000,000, to engage in the business of financing the purchase of motor buses used in the public service.

Said to be one of the first companies ever organized to finance the purchase of equipment by motor bus owners, the new corporation, with headquarters in this city, plans to do business in Virginia, the two Carolinas, Georgia and Alabama, according to its prospectus filed with the State commission.

The company is now organizing subsidiaries in each of the States in which it plans to operate.

## Climber Stockholders Awarded 88.4 Per Cent

LITTLE ROCK, ARK., Dec. 10—Stockholders of the Climber Motor Corp., which was placed in the hands of a receiver several months ago, will receive 88.4 per cent of their claims, according to the final settlement decree issued here in chancery court.

Claims against the company, according to the settlement, amounted to \$77,254, including preferred creditors and others. The settlement was made possible through the sale of the property to R. L. Saxon for \$92,000. The company was formed to make assembled automobiles in a factory in the southeast part of Little Rock.

## Goodyear Prepares to Increase Output

Akron Companies Make Plans for  
Record-breaking Business in 1925

AKRON, Dec. 10—Reports that the Goodyear Tire & Rubber Co. is preparing definitely for a substantial increase in business next year have been verified in a statement issued by G. M. Stadelman, president of the company.

On the basis of operations during the past 11 months, Goodyear will have produced more tires this year than in any previous year in the company's history, officials state. In the first six months of 1924 the company reported net sales of \$55,412,034, which is expected to be equaled, if not surpassed, during the last half of the year.

Completion of the new engineering building, a five-story structure started four years ago and never finished, was decided upon recently as the first step toward relocating departments of the factory to obtain greater operating efficiency and to increase production.

## Plans of Other Companies

Other Akron rubber companies are preparing to participate in a record-breaking automobile tire business during 1925, according to present indications. To meet the expected heavy demand, the factories are now being geared up to capacity.

Goodrich and Firestone, the two next largest companies, are in a position to increase their output without materially enlarging their present plants. Both these companies carried out a big construction program during 1920 and 1921.

The General and India companies are completing work on additions which will increase by nearly 50 per cent the capacity of their factories. The new buildings, costing several hundred thousand dollars, are to be finished early this month.

## Replacements by Public

In a letter to Goodyear dealers, President Stadelman points out that the great volume of business for replacement tires for automobiles does not come until the second year after the public's purchase of new cars.

The year 1923 saw the greatest increase in car registration in the nation's history. Consequently there is every reason to expect a substantial gain in tire buying in 1925, Mr. Stadelman asserts in his letter.

## TO DISCUSS STANDARDIZATION

WASHINGTON, Dec. 11—Standardization conferences on spark plugs, brake lining and piston sizes and over sizes will be held in this city on Dec. 18 and 19 under the direction of the Division of Simplified Practices of the Department of Commerce.

## Transport Experts Urge Cooperation

### New England Conference Concludes Unregulated Competition Is Wasteful

BOSTON, Dec. 10—Coordination and cooperation were the watchwords of the New England Motor Transport Conference at the two-day session here this week. Automotive manufacturers, bus and truck operators, electric and steam railways, highway officials and representatives of the public joined in getting the other fellow's point of view with great profit to all concerned.

Sparks flew at times where sharp difference of opinion arose, but there was a commendable evidence on the part of all concerned to seek common ground and adjust such differences as are productive of wasteful competition in the transportation field.

This is evidenced by the adoption at the conclusion of the meeting of a set of resolutions which may be summarized as follows:

#### Resolutions Adopted

Adequate transportation of all types is essential to continue progress in New England and public interest is best served by regulated cooperation of all transportation mediums.

Unregulated competition is wasteful and injurious to the community and irresponsible operators are a menace.

Present State commissions should be vested with authority to regulate all transportation facilities, including those of automotive type.

Carriers should be required to secure certificates of convenience and to take out insurance against injury to persons and property, including passengers and cargo.

Taxes on motor vehicles should consist of those in force at present and used for highway construction and maintenance or those in exchange for franchises, same not to constitute an undue burden.

Steam, electric and other utilities should be permitted to acquire and operate motor vehicles in conjunction with their regular lines.

Present public authorities in New England States charged with carrier regulation should formulate uniform regulatory statutes.

Regulation of traffic should be under uniform regulations and lodged in State highway departments.

Present State and Federal cooperation in highway development should be continued.

Coordination and cooperation should be furthered by conferences between committees appointed by motor truck and railway interests in various localities.

A permanent committee composed of representatives of interests which took part in the conference shall be appointed to continue the relations established and coordinate efforts along similar and related lines.

#### Many Attended Meetings

There was an exceptionally good attendance at the meeting, and the interest of delegates was maintained until the very end of the sessions. Officials of the N. A. C. C. expressed much satisfaction

## PARIS BANS HORSES IN A TRAFFIC TEST

PARIS, Dec. 1 (by mail)—Horse vehicles of all kinds and all slow moving traffic have been ruled off the streets in a central portion of Paris, representing a square about three-quarters of a mile across, from 3 to 7 p. m. This is a part of the plan of the new Chief of Police to relieve traffic congestion by speeding up the rate of travel.

In deciding what is and what is not slow traffic, the Paris police have been given instructions to rule out all vehicles which cannot hold their place in the normal flow. In addition to horse-drawn vehicles, this will eliminate trucks weighing more than eight tons, removal vans, tractors with trailers and all types of handcars.

Paris intends to start a campaign for the education of the pedestrian.

both with the meeting itself and with the spirit of cooperation manifested by practically all interests represented.

## Mercer Motor Car Co. Resumes Production

TRENTON, N. J., Dec. 10—Mercer Motor Car Co. is back into production, although on a limited scale. At present it is making four or five cars to exhibit at the New York and Philadelphia automobile shows. They are custom jobs with the buyers given the choice of color, finish and upholstery. Some changes are being made in the line as formerly produced, and all models will be fully equipped.

Until the plant reopened in October it had not been producing for eight months. The new company, formed to take over the plant and now operating it, is headed by Frank Curran. The other officers are John L. Kuser, Jr., vice-president, and William E. T. McDevitt, secretary and treasurer.

## French Plan Increase on Automotive Imports

WASHINGTON, Dec. 10—A material increase in the duties on automobiles and accessories is expected under the new French customs duties, now in the process of revision, the customs division of the Department of Commerce has been advised by the United States Trade Commissioner at Paris.

The bill has been in preparation for nearly three years, and its adoption will mark the first reorganization of the French customs duties since 1892.

#### STEAM TRUCK MEETING

ELGIN, ILL., Dec. 10—Stockholders of the American Steam Truck Co. will meet Dec. 14 to decide upon the company's future.

## Ford to Build New Plant Near Boston

### Site Secured at Somerville for Another Assembling Unit to Cost \$4,000,000

SOMERVILLE, MASS., Dec. 10—Definite selection of this place as the location for a new Ford assembly plant in New England was announced by Mayor John M. Webster after the board of aldermen had passed an appropriation to meet requirements of the Ford Motor Co.

A tract of 30 acres for the new plant has been secured by the Ford company from the Boston & Maine Railroad. On this will be erected a \$4,000,000 building, 1160 ft. long and 300 ft. wide. It will give employment to 2500 persons and will be capable of assembling 500 cars a day.

#### Second Unit Planned

The location of the new plant is in the Charlestown district of Boston affording access to ocean shipping through the Mystic river if the government dredges about 300 yds. to the edge of the channel. Two lines of the Boston & Maine railroad merge near the land. There is room for 200 freight cars at a time.

Later there will be built a second unit, costing about \$2,000,000, making the total cost of the project, exclusive of the land, about \$6,000,000.

A real estate man has secured a large vacant plot nearby for development purposes and plans to build 200 two-family houses. The new plant will be within 30 minutes' ride of Boston by street railway and 15 minutes by train.

## Used Car Sales Gain in Middle West

CHICAGO, Dec. 10—Automobiles sold at wholesale during October by representative distributors of the Middle West, reporting to the Federal Reserve Bank in Chicago, were in smaller volume than in the preceding month, but greater than in October, 1923, according to the bank's monthly analysis. Retail sales, according to the bank, also decreased slightly, compared with the month preceding.

The bank finds that stocks of new cars with dealers decreased from the preceding month, and October, 1923, the year-to-year comparison showing the first drop since the compilation of these figures was begun in July, 1923.

Used cars sold in the Middle West during October increased over September, as well as over October a year ago. The number of salable used cars in dealers' hands on Oct. 31 was greater than on Sept. 30, 1924, and Oct. 31, 1923, the used cars on hand Oct. 31, last, representing 125.8 per cent of the used car sales during the month.

## Sees Enlarged Field for American Cars

G. E. Willis, Back from Europe,  
Says Stable Exchange Rates  
Favor Foreign Sales

SOUTH BEND, Dec. 10—"Stabilization of the exchange rates will tend to increase the sales of American cars in foreign markets, despite the prevalence of high taxes on piston displacement, which has worked toward the exclusion of the large American car as a more practical and serviceable means of transportation than the European cars supplied to them," says George E. Willis, export manager of the Studebaker Corp., who has just returned from an eight-month tour of the world inspecting the Studebaker foreign dealer organization and the export possibilities.

Continuing, Mr. Willis states:

Sales methods are far from being as highly standardized abroad as they are in the United States, nor are the markets worked so intensively as they are here. The demand for all kinds of cars, especially those of American manufacture, is increasing steadily, and the tendency throughout the foreign trade is toward standardization and greater sales efficiency. American sales methods are far better than those of the foreign dealer, as the American dealer is better acquainted with the potentialities of the market.

Improvement in the monetary exchanges of the countries will result in increased business to the American exporter. The exchange problem is so acute that in some of the Scandinavian countries a license tax has been levied on all cars that is so excessive that few can own cars, and the importation of new cars is out of the question. This is done to protect and stabilize the monetary exchange rate. The foreign markets are just recovering from the natural depressing results of the war and every dealer is experiencing an increasing demand that has no apparent limit in the next few years.

### Effect of Horsepower Tax

Speaking of the horsepower tax that has limited the engines of the European cars to the small bore, long stroke, high speed types, Mr. Willis says that there was really a demand for the larger engined American cars, but that the excessive horsepower tax, coupled with the high price of gasoline in certain foreign countries, forces them to manufacture and sell the smaller cars.

Dissatisfaction with the existing horsepower tax is increasing, and in England action has been taken to supplant it with a flat rate license per car, and to secure the additional revenue by a tax on fuel and tires. Such a bill has been placed before Parliament, but to date there has been no resultant legislation.

### Foreign Engines Weak

"The greatest objection to the foreign car that I noticed in covering the dealer field," Mr. Willis says, "was that the engines were not powerful enough and that they were run so close to their maximum output that they were then too

## FARM BUYING POWER BEST IN FOUR YEARS

WASHINGTON, Dec. 10—The purchasing power of the American farmer today is at its highest level of any time during the last four years, according to the annual report of the Department of Agriculture.

The report reveals that the farmer's purchasing power today is 16 per cent above the index for May, 1921, but is still 18 per cent below the pre-war level.

The 1924-25 crop will be worth \$12,000,000,000, it is estimated. This is \$500,000,000 more than last year's crop was worth and is \$2,500,000,000 more than the 1921-22 crop.

delicate to stand up under the strain of foreign and colonial use. The sturdier American car is sweeping the foreign market, and in most cases it has the advantage of being able to undersell the European car. In the market exclusive of Europe, the American car far outsells the European cars, despite the attempt on the part of many European manufacturers to supply special export models to their foreign trade."

Mr. Willis says he found that the foreign market was in a position similar to that of the American market of 10 years ago, but that the foreign mind is grasping the idea that the automobile is a necessary method of personal transportation. He declares that the idea that persists in the minds of some American exporters that it is necessary to equip export cars with such special equipment as wire wheels, magnetos and specially prepared parts is being proved erroneous, and that Studebaker is finding that the standard American equipment, with the exception of the right-hand drive, is proving satisfactory.

## White Motor Securities Offering Oversubscribed

NEW YORK, Dec. 10—Walter C. White, president of The White Motor Co. and of the White Motor Securities Corp., announces that applications totaling \$3,600,000 were made for the \$2,500,000 7 per cent preferred stock of the latter company offered a few weeks ago.

This represents half of the authorized preferred stock of the new company. The remaining portion will be held for the growth and needs of the company.

### HUPP CUTS PRICES \$100

DETROIT, Dec. 9—The Hupp Motor Car Co. has reduced prices \$100 on the two-passenger coupe and five-passenger club sedan models. They now list at \$1,350 and \$1,375 respectively. The changes are effective immediately.

## Gas-Electric Buses to Run in New York

City Authorizes Operation of 10  
as a Beginning on Cross-  
town Streets

NEW YORK, Dec. 10—Gerrard P. Tameling, president of the Service Bus Corp., announces that New York City has authorized the company to operate Tilling-Stevens gas-electric buses up to 10 in number and that it will start placing them in use next week on Seventy-ninth, Eighty-sixth and Ninety-sixth streets, with a 5-cent fare.

This will mark the beginning of the use of the Tilling-Stevens gas-electric bus system in the United States. The company operates them in Europe, Australia, China and other parts of the world. Over 600 are in operation in London.

The company recently made application to New York City to operate a complete system in Manhattan, with a 5-cent fare, half-fare for school children and with 2-cent transfers. As compared with the gear-driven buses, it claims a saving of 5 cents per bus-mile and a total saving, including depreciation, of 15 cents per bus-mile.

The American National Omnibus Corp. of New York has the exclusive right to make the buses in the United States. It has all of the 10 ready to place in operation in this city.

## M.A.M.A. Names Committee on International Trade

NEW YORK, Dec. 11—E. P. Chalfant, chairman of the board of the Gill Piston Ring Co. and formerly of the American Steel Export Co., has been appointed chairman of the International Trade Committee of the Motor and Accessory Manufacturers Association.

Associated with Mr. Chalfant on the committee are the following: J. F. Kelly, Jr., export manager of the Electric Storage Battery Co.; E. C. Steinacher, export manager of the Moto-Meter Co.; M. P. Nolan, vice-president and general manager of the Overseas Motor Service Corp.; G. A. Wainwright, vice-president of the Diamond Chain & Manufacturing Co., and George A. Colcough, acting export manager of the American Chain Co.

Herman Deuster of the M. A. M. A. staff will continue as secretary of the committee.

### NEW KLEIBER PLANT READY

SAN FRANCISCO, Dec. 10—In a few weeks the new \$250,000 plant of the Kleiber Motor Truck Co. will be opened in this city. Passenger cars will be produced. The Kleiber policy is that of sale direct from factory to customer. Paul Kleiber is president of the firm.

## Stout Metal Airplane Sold to Government

Company, However, Will Continue Plans to Put Flyers in Commercial Operation

DETROIT, Dec. 10—Plans for building all metal airplanes for commercial purposes by the Stout Metal Airplane Co. will continue unchanged, although the first of the commercial flyers has been bought by the Government airmail service. As announced this week, the company regards the Government purchase as an indorsement of the commercial possibilities of this type of plane and it is proceeding with its construction plans.

At least two more boats of the type of the "Maiden Detroit" will be built by early spring, and it is expected that they will be taken over for operation at that time by a commercial company, which will fly them in inter-city traffic between Detroit and another midwestern city.

The company is confident that the coming year will see the formation of several companies engaged in commercial airplane operation at several points in the United States, and it is shaping its production plans to meet this potential business.

Official plans for governmental operation of the plane just bought likely will be issued from Washington. The boat is of far larger carrying capacity than any now in the airmail service, and its use is expected to result in the broadening of the service so that certain classes of parcel post may be carried.

### Eight American Engines Developed

WASHINGTON, Dec. 10—American engines have been developed to such an extent that the airplane industry now has eight proved types of engines in horsepower ranging from 60 to 800, says the annual report of the National Advisory Committee on Aeronautics, transmitted to Congress by President Coolidge.

With the report the President submits a recommendation that legislative appropriations be made for the continuous prosecution of scientific research because, in the last analysis, he says, "substantial progress in aviation depends upon such study."

The main features of the report, which covers the air services of the army, navy and post office departments, are summarized as follows:

Commercial aviation does not pay, and to become a success aircraft must be made safer, more controllable and less costly.

The aircraft industry is generally in a very poor condition, but the solution of the problem is through systematic reorganization, in connection with the three branches of the Federal Government.

Scientific research is the most important factor in the development of aviation.

The relative importance of aircraft in warfare is increasing.

As to the question of the types of planes most practicable, the committee reports that both the biplane and monoplane are given the greatest consideration.

The use of lightweight metals in the construction of planes is coming into more general favor, the report asserts, and, with the development of duralumin, an aluminum alloy, it is expected that even greater strides will be made in that direction, giving greater durability, better protection and cheapness.

## Says Truck Industry Reflects Stability

DETROIT, Dec. 10—Truck production and sales for the year will compare favorably with practically every other industry in the United States, declares Otto Stoll, vice-president and general manager of General Motors Truck Co. In the automotive field the year will reflect a greater stability in the truck business than in passenger cars, as compared with 1923, Mr. Stoll said, trucks showing a decrease not greater than 4 per cent, while passenger car decrease will approximate 9 per cent.

The truck industry has become so necessary to the commercial and industrial life of the nation that it is not subject to a radical degree of fluctuation, said Mr. Stoll. It feels the effects of general business retardation, but there is a constant demand that must be supplied if commerce is to continue to function.

In the face of generally improved conditions, both in agriculture and industry, 1925 should bring the truck business more prominently to the fore, according to Mr. Stoll.

## Bosch to Put New Type Set in Radio Field

SPRINGFIELD, MASS., Dec. 10—The American Bosch Magneto Corp. will enter the radio field early in January with the manufacture of the Bosch Nobattery receiving set, which dispenses with the use of batteries, employs no tubes and depends on a series of specially designed transformers, rectifying units and condenser to convert the ordinary 110 volt alternating current into direct current applicable to receiving sets.

This device will be made in various types, with the expectation that it will add largely to production in the Bosch plant.

### REO STARTS NEW DIVISION

LANSING, MICH., Dec. 10—Reo Motor Bus Co. has placed Carl Parker in charge of its newly organized bus and taxicab sales division, which has transferred its headquarters to the company's bus plant here. Mr. Parker formerly had charge of the promotion of all commercial vehicles. In carrying out its expansion policies, the company decided to divide the former department and concentrate on buses and taxicabs.

## G. M. Describes Rise of the Closed Car

A. P. Sloan, Jr., Says Time Is Coming When All Automobiles Will Be of This Type

NEW YORK, Dec. 10—The gradual ascendancy of the closed type of car over the open is shown in a booklet covering Fisher Body activities, prepared by General Motors Corp. and mailed to G. M. C. stockholders with the regular dividend checks. General Motors owns 360,480 shares, or 60 per cent, of the entire capital stock of Fisher Body, representing an investment of \$32,151,825, which has a market value more than double that amount.

The first large order received by Fisher Body was from Cadillac in 1910. Four years later the corporation built 105,000 closed and open bodies, most of them of the latter type. For the last six fiscal years, ending April 30, output of bodies follows:

Year	Open	Closed	Total
1919	103,449	31,318	134,767
1920	245,114	83,864	328,978
1921	112,401	87,796	200,197
1922	58,435	99,789	158,224
1923	202,867	217,632	420,499
1924	239,502	335,477	574,979

### Bodies Made in 44 Plants

To meet this growth in body output, the corporation has expanded its manufacturing facilities until today it has 44 plants in which bodies are made, more than half of them in Detroit and the balance in other cities of the United States and Canada. All of them are located in close proximity to car manufacturing factories. The floor space of the plants in which bodies are made totals 15,000,000 sq. ft.

In keeping with this expansion, the corporation organized various subsidiaries, the Ternstedt Manufacturing Co., the National Plate Glass Co., Fisher Hurd Lumber Co., Fisher Body Ohio Co., Fisher Body St. Louis Co. and the Fisher Body Co. of Canada, Ltd.

### Many Glass and Lumber Units

The booklet reports the National Plate Glass Co., operating four plants located in Blairsville, Saginaw and Ottawa, with an annual capacity of 30,000,000 sq. ft. of plate glass. The Ternstedt Manufacturing Co. produces almost 500,000,000 units of hardware a year. Large tracts of hardwood timber are owned by the corporation, which also operates three saw mills with an annual capacity of 100,000,000 ft.

In speaking of the future of the closed body, President Alfred P. Sloan, Jr., in his foreword to the booklet, says: "Each succeeding year sees an ever-increasing percentage of closed cars sold. Nearly half of all cars sold now are closed cars and the time is at hand when we shall mean a closed car when we speak of an automobile."

## Ohio Court Upholds S. A. E. Formula

### Approves Its Use as Basis for Special Excise Privilege Tax on Motor Vehicles

COLUMBUS, OHIO, Dec. 10—The Ohio Supreme Court has upheld the constitutionality of the use of the S. A. E. horsepower formula as a basis for a special excise privilege tax on all classes of motor vehicles.

In 1919 the Ohio Legislature classified motor vehicles into (1) those of 25 hp. and under, (2) from 25 to 35 hp. and (3) over 35 hp., establishing a flat rate of \$8, \$12 and \$20, respectively, with an additional 20c. per 100 pounds of gross weight for commercial cars. This act was held constitutional by the Supreme Court in *Saviers vs. Smith*.

In 1923 the Legislature passed a motor transportation act, thereby exacting an additional tax from commercial cars under the jurisdiction of the public utilities commission. In order to increase the tax on all commercial cars, it amended the horsepower section by increasing the weight tax and changed the division line between the second and third classes of commercial cars from 35 to 30 hp. This divided the natural classification of average heavy duty trucks directly in half, taxing those on one side of the line three times as much as those on the other, although the trucks were actually the same

#### Constitutionality Doubted

The Fisher Bros. Co. of Cleveland, in a case directed against Thad H. Brown, Secretary of State, and prosecuted by The Ohio Motor Truck Club of Cleveland, attacked the constitutionality of the entire registration act of 1919 applying to all motor vehicles and also the constitutionality of the motor transportation act on the ground of usurpation of the home rule of municipalities, improper levy and distribution of taxes, etc.

In view of horsepower having been held constitutional in *Saviers vs. Smith* and of the natural inclination to prevent loss of revenue to the State, the Foltz Grocery & Baking Co. of Cincinnati directed an action also against Secretary of State Brown, attacking the constitutionality only of the amendment of 1923 on the ground that the new classification thereby established, taxing one-half of the same class of trucks three times as much as the other half, was unreasonable, unfair and discriminatory. The success of this contention would have restored the former law of 1919 without denying the State just taxes for the repair of streets and highways.

#### Remedy with Legislature

The Common Pleas Court upheld this contention, but the Court of Appeals did not agree, stating that it hesitated to hold the act unconstitutional in view of *Saviers vs. Smith* and indicating that

the question was one for the Supreme Court.

The Supreme Court has now held against both the Foltz and Fisher cases in their entirety, indicating that the act is constitutional and that any remedy because of certain alleged discrimination lies with the Legislature.

### Day of Open Car Over, Says A. B. C. Hardy

DETROIT, Dec. 10—At a meeting of the Michigan Automotive Trade Association at Kalamazoo, A. B. C. Hardy, president of Olds Motor Works, talked upon "The Dealer of the Future." He summed up the progress of the industry from 1897 to 1919 as the era of the past; 1919 to 1924 as the era of the present, and then the future. Mr. Hardy stated that the day of the open car is over and that from now on it would play an unimportant part in the production plans of the large companies.

He predicted that in the future factories with mass production would not again in the history of the industry manufacture more cars than dealers could merchandise spontaneously and that production schedules would be based on surveys of the market arrived at from reports of dealers on cars on hand and cars sold, reports to be made on a ten day basis.

### Reo to Award Medals for 20 Years' Service

DETROIT, Dec. 10—Twenty-year service medals will be issued by Reo Motor Car Co. this year for the first time in connection with the usual award of service emblems to its senior employees. According to a survey of employees made by R. G. Grammel, head of the welfare department, about ten employees will be entitled to the long time emblem.

Fifteen-year service medals and ten and five-year medals also will be awarded in connection with the annual ceremonies, approximately 400 medals being given in the five-year class, with lesser numbers in the longer term classes.

The twenty-year employees will receive an emblem, 18 carat gold, white gold being inset in Roman gold. Two diamonds set beside the Roman numerals designating the number 10 are symbolic of the tenure of service. The 15-year men will receive medals of carved white gold background with Roman gold center and a ruby.

#### Reo Sedan Sales Increase

LANSING, Dec. 10—Sales records of Reo Motor Car Co. for November show the largest volume of sedan business for any month since September, 1923, due in large measure to the introduction and popularity of the 20th anniversary sedan. The Chicago branch sold 66 in its presentation exhibit. Heavy demand is reported from many sections, including the Northwest, where trade has been lethargic for some time. The New York territory has asked for a trainload of the new model.

## 1925 Trade Revival Indicated in Iowa

### State Survey Shows Favorable Prospects for the Auto- mobile Industry

CEDAR RAPIDS, IOWA, Dec. 10—Iowa automobile distributors anticipate keen sales competition in 1925, with a marked revival of buying, which, however, will have none of the aspects of the boom year of 1922, according to the deductions of a newspaper State-wide survey published here.

Replies from all over the State, personal interviews and rock-bottom reviews of the automobile situation in the State were that 1924 had been a hard year for dealers. The State registration of 22 leading makes of cars for the first 10 months of the year showed only 14,309, nearly 18 per cent below the registration for a similar period in 1923. Even the Ford sales, which run nearly 70 per cent of the total, lagged 7 per cent behind their 1923 figures on the basis of the 10-month report. November sales are said to be 800 cars behind the 1923 figure.

#### Farmers Look for Salesmen

All this, however, is culled from the chapter that is practically closed, according to the dealers. Iowa is set to look with favor on the automobile salesman next year, and more money will be spent on and for cars than this season, while a good farm crop and favorable spring weather will be open sesame to the automobile salesman, distributors predict.

The spring season is expected to begin a period of increasing sales, and with promising weather business will maintain a merry pace until late next fall, according to the summary. Buyers already indicate the effects of the "loosening up," and the relaxation from the tension of the political campaign is reflected in strengthening sales records.

O. H. Perkins, general manager of the Ford Motor Co. plant and distribution branch in Des Moines, was quoted as saying:

I have traveled all over this territory recently, among farmers and business men, and haven't yet found anyone in the gutter, for fundamentally Iowa is a rich State. We are cutting down our production now, but it is only because we are not speculating on a big winter demand. In the spring when the roads open up, our production will expand.

#### Ready to Pay Cash

Other distributors report that the farmer is recovering from his "ultra-conservative" policy, and this attitude is being reflected in business in the small towns, which will eventually work itself into the automobile field in a better demand for cars. Many are paying for cars on delivery or practically completing their payment at that time, and more money seems to be expended for cars due.

## Devises Plan to Cut Hazards on Highways

Elimination of Grade Crossings Among Recommendations Prepared for Conference Dec. 15

WASHINGTON, Dec. 10—Elimination of grade crossings where possible and the establishment of by-pass highways and belt highways are two major recommendations of the report of the Committee on City Planning and Zoning prepared for submission here Dec. 15 to the National Conference on Street and Highway Safety, arranged by Secretary of Commerce Hoover to devise ways and means of reducing highway fatalities.

The committee for the last six months has conducted a survey on city planning and zoning and declares that "the constantly growing volume of automobile traffic makes clear that if we are to decrease the hazard to life and property or provide for the traffic needs of the future we must plan our streets and highway systems and must design the individual thoroughfares with these ends in view."

As a solution toward a partial remedy of the growing loss in life and property on the country's highways, the committee will submit eight recommendations to the conference. These are summarized as follows:

### Eight Recommendations

- (1) Street and highway hazards are due chiefly to vehicular traffic and each community should try to reduce them by properly arranging streets and highways.
- (2) Each community should reach a decision as to how it will provide for the stopping and parking or day storage of automobiles.
- (3) Design and equipment of streets must be such as to secure an even and safe flow of traffic.
- (4) Plan more carefully the development of industrial and business sub-centers.
- (5) Determine through zoning, the character, use and bulk of abutting buildings.
- (6) Study conditions so that it will not be necessary to use the roadway for play purposes.
- (7) Remember that the automobile and the motor bus supplement rather than conflict with rapid transit rail lines.
- (8) Coordinate efforts in a comprehensive traffic and thoroughfare plan, showing a complete system of traffic ways, parking or automobile storage areas and needed street improvements both within the city limits and within the area of probable building development outside of the city limits.

## Russians Must Buy Two for Every Imported Car

WASHINGTON, Dec. 10—A novel import restriction on automobiles into Russia has been decided upon by Soviet officials, according to a report cabled to the automotive division of the United States Department of Commerce. The plan provides that the buyer of an imported automobile must place twice the

number of orders for domestic cars. This law applies only to dealers.

It is estimated that the present domestic production will be about 2500 cars in 1925 and it is proposed that the importation of automobiles for next year be limited to 1318.

The "Tsugaz," which translated means the Russian Automobile Chamber of Commerce, is urging that this import figure be reduced to 250.

The Department of Commerce is advised, however, that the figure will be 1318 allowed to be imported in 1925.

## Gasoline Consumption Gains in October

WASHINGTON, Dec. 10—Production of gasoline during October totaled 760,646,784 gallons; an increase over the previous month of approximately 10,000,000 gallons, according to statistics compiled by the Interior department. The average daily production was 24,500,000 gallons.

The domestic consumption of gasoline during October totaled 751,499,199 gallons and represents an increase of 33,000,000 gallons over the September consumption. The October increase in gasoline consumption is attributed to "good automobile weather."

Gasoline stocks at refineries on Nov. 1, were shown to be 1,152,374,237 gallons, the lowest figure since Jan. 1, 1924. The stock on hand on Nov. 1 represented 47 days' supply at the current rate of domestic demand, compared with a 51 days' supply Oct. 1.

## Jordan Brings Out New Three-Passenger Coupe

CLEVELAND, Dec. 10—The Jordan Motor Car Co. has brought out a three-passenger coupe model priced at \$2,875 on the eight-cylinder chassis. It is offered in three color combinations, gray, green or blue, and is upholstered in the same worsted material used in other Jordan closed models.

The seat of the new model, which is called the friendly three, is 51 in. wide, providing ample room for three passengers. Back of the seat there is a large compartment for parcels and under it a golf club cabinet opening at the side. The compartment in the rear deck holds four suit cases. All three compartments lock with same key.

## Republic Brings Out New Five-Ton Truck

ALMA, MICH., Dec. 10—The Republic Motor Truck Co. has brought out a new five-ton truck, to be known as Model 35. It has been specially designed for road building work, the units being made very heavy and the road clearance greater than on other models.

The new model has a four-cylinder engine and the seven-speed transmission. While the standard driveshaft brake is standard equipment, double drums are used to conserve the linings.

## Export Trade Day Named for Show

Conference on Overseas Trade to Be Held Jan. 6 at the New York Exhibit

NEW YORK, Dec. 10—Tuesday, Jan. 6, has been designated as "Export Trade Day" at the New York automobile show and plans are being completed for a conference on that date of equipment and accessory manufacturers on the overseas trade. This meeting, sponsored by the Motor and Accessory Manufacturers Association, the Overseas Club of the Automotive Boosters International, and The American Automobile (Overseas Edition) and El Automovil Americano, will be held at the location of the Silver Anniversary Show and will be attended by company executives, export managers and automotive dealers and jobbers from abroad.

Few opportunities have been given in the past for a concrete discussion of the export trade problems of the accessory and equipment manufacturing companies. Organization details of the meeting and the observance of the day have been placed in the hands of a committee composed of Herman Deuster and Neal G. Adair, representing the M. & A. M. A.; H. L. Kraus and F. J. Werner, representing the Overseas Club, and J. L. Gilbert and George E. Quisenberry, representing the two international automotive publications.

### Export Business Increases

Reports to the committee indicate that export sales are becoming increasingly important to the American accessory and equipment companies which, like the car and truck makers, have found a steadily enlarging business abroad for their products. Approximately 400,000 American made motor vehicles are being sold abroad in 1924, an increase of nearly 75,000 units over 1923, and this has been accompanied by a steady increase in the volume of equipment sales.

Numerous problems exist in export selling, dissimilar from those encountered in the domestic trade, and it is the purpose of the forthcoming meeting to shed light upon these for the benefit of the American manufacturers. Recognized trade authorities will speak.

### May Become Annual Event

Under the announced plan the export trade meeting probably will become an annual event, in connection with the show. Automotive dealers and distributors in all parts of the world look to three major automotive events each year. These are the automobile shows at Paris, London and New York.

An increasing number of these distributors come to New York each year and, for that reason, it is believed that special recognition of this tendency should be taken.

## Men of the Industry and What They Are Doing

### Wheeler Made Vice-President

W. A. Wheeler, formerly vice-president of Paige-Detroit Motor Car Co. in charge of manufacturing and recently elected a director, has been elected first vice-president of the company. George Petersen, long identified with the company, succeeds Mr. Wheeler as vice-president in charge of manufacturing. John Geronprez has been appointed general factory manager.

### E. C. Morse Resigns

E. C. Morse, who has been in charge of sales of the Wills Sainte Claire Co. for the last three years, has resigned. Mr. Morse has been a well known figure in the automotive industry for a number of years.

### Brown Goes with Gabriel Company

George H. Brown has resigned as sales manager of the Mather Spring Co. of Detroit to become distributor for the Gabriel Snubber Co. in the St. Louis territory. Mr. Brown has been associated with the Mather company for 13 years, having been a manager of the board in addition to the position of director of sales.

### Hubbard Changes Positions

Guy Hubbard, for the last nine years identified with the engineering department of the National Acme Co. at its Windsor, Vt., plant, has resigned to become connected with the National Bread Wrapping Machine Co. of Nashua, N. H., as assistant to the general manager.

### Stephens Takes Charge of Branch

H. M. Stephens, who has been connected with the Cadillac organization for several years, has been appointed general manager of the company's Chicago branch. Prior to his association with Cadillac, Mr. Stephens was connected with the duPont interests, and for several years was construction manager in charge of large construction operations, both for the duPonts and for the General Motors Corp. He was construction manager in charge of the building of the new Cadillac factories in Detroit.

### McDuffee Goes with Prest-O-Lite

Joseph H. McDuffee has been appointed assistant to the vice-president of the Prest-O-Lite Co., Inc., and will devote his time to the sale of batteries to car manufacturers for original equipment. Mr. McDuffee started in the industry in 1899, when he operated a salesroom in New York City. Later he organized the McDuffee Automobile Co. of Chicago to distribute the Stoddard-Dayton and headed the McDuffee Automobile Co. of Denver, handling the Chalmers and Hudson. For a number of years he was

### APPERSON ALLOTTED DINNER HONOR SEAT

KOKOMO, IND., Dec. 10—Edgar Apperson of this city will occupy the seat of honor at the manufacturers' dinner at the New York Silver Jubilee Automobile Show in January, a position given him in view of his 32 years of active and continuous work in the automotive manufacturing field.

It was announced some time ago that guests at the dinner would be seated in accordance with the number of years they had been in business, and a survey disclosed the fact that Mr. Apperson is the only manufacturer now actively engaged in the business who participated in the beginning of the industry.

In this connection it has been brought to light that the "dean" of the automobile industry is still comparatively young—57—and still engaged in developing and improving the inventions which he so notably helped pioneer.

assistant general sales manager of the Willys-Overland Co., Inc., of Toledo, and subsequently served as assistant general manager of the Cole Motor Car Co. of Indianapolis.

### Halley to Represent Gardner in East

D. G. Halley has been appointed eastern sales manager of the Gardner Motor Co. and will handle and supervise the company's business in the eastern districts and also act as personal representative of Russell E. Gardner, Jr., president of the Gardner company. Mr. Halley was formerly eastern sales manager of a mid-western automobile plant for nearly five years.

### Andrews and Jones Move Up

T. N. Andrews, formerly manager of the Boston branch of Robert H. Hassler, Inc., manufacturer of shock absorbers in Indianapolis, has been made treasurer and general manager. N. K. Jones, formerly Indiana branch manager, has been appointed sales manager.

Mr. Andrews succeeds Edward Springer, who for several years was treasurer and manager. Mr. Jones succeeds George K. Bryant. Messrs. Bryant and Springer resigned recently.

### Dunneacle Made an N. S. C. Secretary

A. F. Dunneacle, safety director of the Olds Motor Works, has been appointed secretary of the automotive section of the National Safety Council.

## Trade Associations Favored by Hoover

### Annual Report Characterizes Them as Greatest Factor in In- dustrial Waste Elimination

WASHINGTON, Dec. 10—An appeal for a more liberal interpretation of the laws governing trade associations, which he characterizes as the greatest factor in the elimination of industrial waste, features the annual report of Secretary of Commerce Hoover. His report deals chiefly with the necessity of eliminating the wastes in industry.

After reviewing the accomplishments of the department during the last three years, he refers to trade associations as follows:

One of the most important agencies through which the elimination of waste may be promoted is the trade association. It is true that a small minority of these associations in the past have been used as cloaks for restraint of trade by such activities as open-price associations and other attempts to control distribution or prices.

It is equally true that the vast majority of trade associations have no such purpose and do no such things. The dividing line, however, between what activities are in the public interest and what are not in the public interest is not today clearly defined either by the law or by court decision, as it should be.

In consequence of recent decisions of the courts, many associations are fearful of proceeding with work of vital public importance, and we are losing the value of much admirable activity. At the same time we are keeping alive the possibility of wrongful acts. It is imperative that some definition should be made by which an assurance of legality in proper conduct can be had and by which illegality or improper conduct may be more vigorously attacked.

Any collective activity can be used as a smoke screen to cover conspiracy against the public interest, but that is no reason for condemning all collective activities. Just because automobiles are sometimes used by bootleggers for the illegal transportation of liquor, we do not prohibit their manufacture or their legitimate use.

### Banta Resigns from Rickenbacker

A. J. Banta has resigned as sales executive of the Rickenbacker Motor Car Co., with which company he has been for the last two years as associate to Capt. E. V. Rickenbacker, vice-president in charge of sales. Mr. Banta is one of the old timers of the industry.

### Schmuck in New Position

E. L. Schmuck has been appointed sales manager of the American Rubber & Tire Co., Akron, according to announcement by President J. T. Johnson.

## Kansas City Moves Toward Bus Service

Order for Purchase of 63 Likely  
to Follow Decree Issued  
by U. S. Court

KANSAS CITY, MO., Dec. 10—Bus service on an extensive scale, to be provided by the Kansas City Railways Co., was brought a step nearer when Judge Kimbrough Stone of the Federal Court instructed the receiver for the street railway company to enter negotiations with the city toward securing franchises, permits and ordinances restricting bus operations. An order instructing the receivers to purchase buses is expected next.

The instructions follow submission to the court of a report by the receivers, embodying summary of a survey made that showed a necessity for at least 63 buses to supplement electric street car service. Routes were designated, in this report, including inter-city, cross-town, feeder and downtown bus lines.

The 63 buses recommended for the initial installation include 40 single deck, 18 double deck and 5 parlor car buses. The total expenditure for buses estimated by the receivers is \$600,000, and \$150,000 was suggested for garages and shops.

A bus line already operating was restrained by the Federal Court, under a Kansas City, Mo., city ordinance against jitneys passed in 1921. This bus firm is operating under a permit in Kansas City, Kan., however, and is now extending its operations into suburban lines.

### New North Carolina Board Urged

RALEIGH, N. C., Dec. 10—The five State officers named by the special session of the legislature last August to investigate the regulation and licensing of automobiles, buses and commercial trucks, have informally agreed to recommend that the proposed supervision be not vested in any existing department, but that a new board, consisting of the heads of various departments, be appointed to serve without additional pay.

The present commission is composed of Frank Page, chairman of the Highway Commission; W. N. Everett, secretary of State; R. A. Doughton, commissioner of revenue; James S. Manning, attorney general, and W. T. Lee, chairman of the Corporation Commission.

There has been some division of opinions as to the wisdom of regulation, with Governor Morrison leading the opposition. However, the commission at its first meeting shortly after its appointment unanimously decided to recommend regulation under terms that would yield a substantial revenue to the State.

It was tentatively agreed to follow the course taken in most of the other States having such regulation and place the matter under the supervision of the body having control of public utilities, which

in this State would be the Corporation Commission.

However, there has been a pronounced feeling in some quarters that it would be wise to place control of railroads and their competitors under different agencies and there has been an informal agreement to recommend the new body.

All of the officials on the commission have been reelected, except Judge Manning, who will be succeeded by Dennis G. Brummitt of Oxford.

## Electrical Banquet Dated for January 6

NEW YORK, Dec. 10—The annual automotive electrical banquet will be held in the grand ball room of the Hotel Astor on Tuesday evening, Jan. 6, during show week. Last year ten manufacturers of starting, lighting and ignition equipment with their New York City branch managers and central station operators acting as a committee on arrangements entertained about 300 of their affiliated service station operators at the banquet.

This year the battery and electrical accessory manufacturers groups have been added and plans completed for an event surpassing in interest that of a year ago. The banquet is open to anyone engaged in the service or sales of starting, lighting and ignition equipment, batteries and electrical accessories.

## Seiberling to Start Plant at New Castle

AKRON, Dec. 10—Plans have been made to reopen the plant of the Seiberling Rubber Co. at New Castle, Pa., it was announced here by F. A. Seiberling, president. This factory has been closed since early in 1924, when it was decided to concentrate temporarily on tire manufacturing operations at the Barberton plant.

It is planned to operate the New Castle plant on a new line of rubber manufacture, beginning the first of the year at half capacity and keep the balance of equipment available for tire production in event that the increased capacity of the Barberton plant shall prove insufficient to meet demands during 1925.

New equipment being installed at the latter plant will increase capacity by nearly 50 per cent, bringing the total tire output to 3500 a day.

## Discuss Compulsory Liability Insurance

NEW YORK, Dec. 10—With a view to adopting a general attitude toward compulsory automobile liability insurance, a meeting of insurance company representatives and agents was held at the Hotel Astor, this city, this week. Following a lengthy discussion of the question, it was decided to take no definite stand at this time, but to appoint a committee of nine to draft resolutions and submit them at a later meeting.

## Sees Great Increase in Mexican Sales

Dealer Says His Country Offers  
One of Best Fields for American Automobiles

HOUSTON, TEX., Dec. 10—A great increase in sales of American automobiles in Mexico during the next few years is predicted by Emilio Azcarraga, vice-president of Compania El Auto Universal, S. A., who is in charge of the Monterey branch of that company. Mr. Azcarraga has been visiting the automobile trade in Houston and other cities of Texas. He said:

The automobile business in Mexico is making great strides. Mexico is one of the strongest potential automobile fields in the world. Contrary to the general impression, Mexico's roads are as a rule pretty good. They are natural roads, but they are not heavily rutted or extremely rough, except in the northern part of the country.

If the roads of northern Mexico could be improved, say from the border to the neighborhood of Saltillo, touring between the capitals of the United States and of Mexico would soon be a usual thing.

Much progress along the line of road building is noticeable now. The public has become road-conscious and a very strong sentiment for road improvement is being developed, due in part, at least, to the ever-growing popularity of automobile transportation.

## Byrne Kingston & Co. Ready to Market Filter

KOKOMO, IND., Dec. 10—Byrne Kingston & Co. is ready to market what is termed the Kingston Oil Aerator and Filter, a device intended to reduce oil dilution by exposing the oil to air at a pressure below that of the atmosphere and then to filter from the oil particles of foreign matter and sediment which otherwise tend to collect in the oil sump and crankcase of the engine.

This device comprises a two-compartment tank which has a float mechanism in the upper chamber and a filter in the lower chamber. Oil from the crankcase of the engine, to which the upper tank is connected, is drawn into this tank by inlet manifold vacuum. From the upper tank the oil flows through the filter in the lower compartment and thence returns to the crankcase. Operation is entirely automatic and in no way depends upon the engine lubricating system for its functioning.

### TAXICAB CHAMBER TO MEET

NEW YORK, Dec. 10—The first annual get-together meeting and dinner of the Empire State Taxicab Chamber of Commerce will be held at the Hotel Empire, this city, on Thursday evening, Dec. 18. The Chamber represents in its membership taxicab companies, cab and body builders, sales agencies, insurance, tire, accessory and equipment men.

## Automotive Stocks Advance in Price

### Upward Move on New York Exchange Said to Indicate Prosperity in the Industry

NEW YORK, Dec. 10—Motor securities as a group forged to the front on the New York Stock Exchange Monday, making a general advance while the other stocks lagged. Since election day securities on the exchange have moved principally in groups. First attention was attracted to the rails and the basic steels. The steel stocks were followed by other industrials, not including, however, to any general extent, the motors, oils and coppers. It has been generally conceded that if the forward movement in securities was discounting prosperity in 1925, it was bound to include these important groups.

Now that the motors as a group have joined in an upswing that is attracting public attention, there is no longer any doubt that increased prosperity is not far ahead in the automotive industry. This includes the tire industry, the securities of corporations engaged in that line also having joined in the advance. Wall Street has a way of registering events accurately long before they come to the attention of the general public. Judging by this record, the prosperity that is to come in the automotive industry may be even greater than expected by the manufacturers themselves.

#### Motor Stocks Lead

The week started off with attention centered on the motor group of securities. On the opening day Fisher Body stock advanced to 216½, where it closed, showing a net advance of 4½ points over the closing price on Saturday. Pierce-Arrow preferred for the day showed an advance of 7 points, while the prior preferred advanced 4 points and the common 1½. Nash Motors was the most notable example of the move, advancing 11 points for the day. Maxwell Motors also attracted special attention. Following the publication of an improved earnings statement Maxwell A advanced 2½ and Class B 4½ points. General Motors and Studebaker showed fractional gains.

Truck stocks, which also had been taken in hand earlier in the month, continued their advance. Mack Trucks reached 113, closing Monday at 112½, an advance of 2 points over the previous closing price. White Motors, which is said to be booked for a rise something similar to the notable advance made by Mack Trucks, reached 69½ on Monday.

#### CALIFORNIA SALES GAIN

SACRAMENTO, CAL., Dec. 10—Sales for the 10 months of 1924 in Sacramento are approximately 17 per cent ahead of 1923. Every month this year has shown an increase over the corresponding month of 1923.

Copious rains that have fallen throughout the Sacramento valley and mountain sections are proving a stimulus to buying, ample water for irrigation next season appearing to be assured.

### Nash November Shipments Set New High Record

KENOSHA, WIS., Dec. 10—Nash Motors Co. reports factory shipments in November exceeded all previous November records and were 122 per cent above the figure set by November of last year. They surpassed every month of 1924, except October, which was the best month in the history of the company. Even demand is reported all over the country.

Speaking of conditions, C. W. Nash, president of the company, says:

The business outlook for our particular line of business is exceptionally good. We have ourselves been extremely busy all the fall, which is more than can be said for the same period a year ago. We have had a very satisfactory year so far for 1924 and I predict that 1925 will also be a good year.

General conditions are better at home and abroad. The presidential election, with whatever uncertainties accompanied it, is past. America is at peace with the world. International conditions grow more stable. The farmer is getting better prices for his product. Money is easy.

### Battery Dealers Asked to Vote on Guarantee

CHICAGO, Dec. 10—Fifteen thousand battery dealers have been asked by the National Battery Manufacturers' Association to vote on the question of a standard battery guarantee. A ballot mailed to these dealers carries these two propositions:

I am in favor of a standard form of guarantee: This guarantee should be—  
I am opposed to a standard form of guarantee: My reasons are—

These ballots are to be returned to R. D. Mowry, Universal Battery Co., Chicago, who is chairman of the guarantee committee of the association. A report of the balloting is to be made to the next meeting of the association in February at Cleveland.

### October Shows Lower Traffic Fatality Record

NEW YORK, Dec. 10—Reports compiled by the Traffic Planning and Safety Committee of the National Automobile Chamber of Commerce for October show a reduction of 2 per cent in motor fatalities, as compared with previous month and with the same period a year ago.

The total number of fatal motor accidents in cities over 100,000 population was 520 for October, as compared with 530 in September and 535 in October, 1923.

The death rate was highest in the largest cities. In the list of the ten first cities Los Angeles alone showed an improved record, as compared with the previous month and with October of last year.

## FINANCIAL NOTES

Electric Auto-Lite Co. has arranged to retire all of its outstanding first mortgage 7½ per cent bonds at 105 and interest on Dec. 31, 1924. Thus in two and one-half years the company will have retired all of the original issue of \$3,000,000. The voting trust for the common stock will expire with the redemption of these securities and the voting trust certificates become exchangeable for common stock certificates. The exchange may be made at any time after Jan. 1, 1925, at the Chemical National Bank of New York, the Commerce Guardian Trust & Savings Bank of Toledo, transfer agents. After the payment of the bonds the only capital liability will consist of 250,000 shares of no par common.

Fisher Body Corp. 5 per cent serial gold notes to the extent of \$15,000,000, dated Jan. 5, 1925, are being offered by the Bankers Trust Co., Guaranty Co. of New York and Union Trust Co. of Pittsburgh. Proceeds will be applied to the retirement of \$17,500,000 6 per cent serial gold notes outstanding. The notes are offered to yield from 4.25 to 5.125 per cent, depending on maturity, which ranges from \$2,500,000 each on Jan. 1, 1926, and 1927 and \$500,000, each on Jan. 1, 1928 and 1929. With the redemption of the 6 per cent notes the company will have paid off the entire issue made early in 1925 to provide additional working capital.

Maxwell Motor Corp. for the first 10 months of 1924 reports sales of \$67,151,650 and net earnings of \$3,754,625 available for interest and taxes. October's net approximated \$1,084,000 before reserves for interest and taxes, a new high record. After estimated interest charges net in the first 10 months applicable to the 182,533 shares of A stock, before taxes, approximated \$3,340,000, or over \$18 a share.

Murray Body Corp. stock to the amount of 50,000 shares, out of a total of 300,000, is being offered for public subscription at \$42.50 a share by a syndicate comprising Charles H. Barney & Co. and Farnum, Winter & Co., New York. The company was organized in Michigan recently to acquire the assets and properties of the C. R. Wilson Body Corp., Towson Body Co. and J. C. Widman & Co.

Sparks Withington Co. directors have declared the usual extra dividend of 50 cents per share on the common in addition to the regular quarterly dividends of 50 cents on the common and 1¼ per cent on the preferred stock, all payable Jan. 2 to stock of record Dec. 15, with the exception of the convertible preferred, dividends on which will be paid by the Union Trust Co. when presented. The latter issue has been called for redemption.

Maxwell Motor Corp. directors have authorized the sale of \$3,500,000 first mortgage 5 per cent gold bonds, dated Dec. 15, 1925, to Dec. 15, 1934, and maturing \$350,000 from Dec. 15, 1925, to Dec. 15, 1934, inclusive, for the purpose of redeeming the \$4,750,000 10-year 7 per cent convertible sinking fund gold debentures called for Jan. 26, 1925, at 105 and interest.

J. I. Case Threshing Machine Co. bills payable Dec. 1, \$3,356,000, compared with \$4,977,500 Dec. 1, 1923, and were lower than at any time in the last 15 years, with the exception of the fall of 1919. The company stated that bills payable were no more at this time than in 1909, when annual sales were less than \$6,000,000.

Ames Holden Tire & Rubber Co., Ltd., has decided to begin, on Jan. 1, 1925, interest payment on its income bonds. This will be for the six months' period ending Dec. 31. This action was reported due to improvement in business. Income bonds total \$1,048,600, the interest rate being 7 per cent.

Detroit United Railways Co. announces the sale of \$1,000,000 of 6 per cent 10-year equipment trust bonds to the Union Trust Co. of Cleveland and Waltham, Lercher & Co. of Detroit, the proceeds to be used to provide additional electric cars and motor buses.

Jordan Motor Car Co. has declared the regular quarterly dividends of 75 cents a share on the common and 1¼ per cent on the preferred, both payable Dec. 31 to stock of record Dec. 20.

Borg & Beck Co. has declared the regular quarterly dividend of 50 cents, payable Jan. 1 to stock of record Dec. 20.

Kelsey Wheel Co., Inc., has declared a dividend of \$1.50 a share, payable Jan. 2 to stock of record Dec. 20.

## Packard Holds Seven Sectional Meetings

### Groundwork Laid for Progressive Merchandising at Well Attended Gatherings

DETROIT, Dec. 10—Packard Motor Car Co. will conclude this month with a series of sectional meetings in seven central cities of the country at which it brought together its entire dealer and distributor organization for purposes of mutual advancement. Through the holding of the meetings and the practical 100 per cent attendance of its selling organization the company feels that it has laid the groundwork for thoroughly progressive merchandising effort in the coming year.

The meetings were held, or will be held before the month closes, in Columbus, Ohio; Cincinnati, Atlanta, Philadelphia, Minneapolis, San Francisco and Dallas, Tex. The two latter meetings are set for dates later in December. Each meeting was designed to draw in all the dealers in the defined territories and were arranged both geographically and by program so as to get full attendance at the expense of not more than one day's absence from business.

Dealer problems were considered entirely from the side of what had been accomplished by other dealers under similar conditions. No hard and fast factory recommendations were attempted.

#### Clearing Houses of Information

The meetings were made clearing houses of information on business administration, each feature being presented by a factory executive who had made special studies in the dealer field.

Speakers at the meetings were R. E. Chamberlain, sales manager; H. N. Davock, technical service manager; J. A. Gilray, in charge of the Packard educational department, and J. W. Loranger, factory financial expert. Alvan Macauley, president of Packard, and Dr. H. H. Hills, vice-president in charge of sales, spoke at many of the meetings. Their talks were mainly on factory policies, whereas the other speakers featured everyday experiences in the management of an automobile business.

Each meeting covered two days. The first day was given over to distributors and the second day to dealers. Members of the staffs of the dealer companies were also present in large numbers.

#### FABRIC MAKERS ELECT

CHICAGO, Dec. 10—The Associated Manufacturers of Fabric Auto Equipment, Inc., has elected the following officers for the ensuing year: President, Clyde Hinson, Hinson Manufacturing Co., Waterloo, Iowa; vice-president, A. W. Connor, Cincinnati Auto Specialty Co., Cincinnati; secretary, Edwin B. Nathan, Nathan Novelty Manufacturing Co., New York City, and treasurer, Roy M.

Thomas, Thomas Auto Top Co., Muncie, Ind.

The next meeting of the association will be held in Detroit Feb. 22. Membership represents a greater majority of the production in the United States and Canada of fabric automobile equipment.

### Cleveland Reports Rising Trade Tide Approaching

CLEVELAND, Dec. 10—Payrolls are gradually increasing in Cleveland and the hours of work for employees are lengthening, but the automobile factories have not yet felt to any extent the influence of the rising tide.

The automobile factories reporting to the Labor Relations Committee of the Chamber of Commerce lost 23 men during November, while practically every other industry reported a gain in employees.

The same situation is reported in the retail trade of the city. Automobile dealers report that they are doing some business, but that the increasing sales reported in some other lines have not yet been felt in the automobile industry. They assign the nearness of the automobile shows as the cause.

There is evidence in the report of the Chamber of Commerce for the month that a rise in business is approaching the automotive industry in this city. Forty-two iron and steel companies and fabricating plants increased their employees 1200 during November. These are industries that sell largely to automobile companies.

Twenty-six plants of the 100 that report to the Chamber of Commerce expect to increase their number of employees during December. Five of these are concerns in the automotive industry.

### Seek Two-Seater Taxi Licenses in London

LONDON, Dec. 1 (by mail)—The licensing authority in London has been asked to approve of a type of taxicab new to this city—a two-seater. The four-passenger type is now exclusively used. It is stated that, although the authority has not yet agreed to license vehicles of this smaller type, it has gone so far as to suggest that the fare should be at the rate of eightpence per mile, instead of 12 (one shilling).

The possibility of this concession being made has aroused vehement protests from the Motor Cab Trade Protection Society, which maintains that it would result in four-seated cabs becoming an unprofitable undertaking.

#### GITHENS HEADS ASSOCIATION

CHICAGO, Dec. 10—Officers were elected here by the Central Auto Finance Association as follows: President, W. L. Githens; vice-president, A. H. Rosenberger; secretary, G. S. Ellithorpe; treasurer, A. J. Deutchman. Earl S. Price has been appointed executive secretary.

## METAL MARKETS

There is every indication that more steel is being bought than consumed. This is especially noticed in the heavy rolled products, such as bars and shapes. Although an advance in sheet prices is predicted, there does not appear to have been so marked an expansion in the buying of these as in bars. While full-finished automobile sheets are steady on the 4.75c. basis, the recently announced reductions in the prices of leading passenger motor cars has thrown somewhat of a damper over the enthusiasm of those who, since the steel market has turned the corner, could see nothing but a continued rise of prices on all automotive steel products.

The steel industry, as a whole, is probably working at a better than 75 per cent of capacity rate of operations today, but there are quite a few products that so far do not share quite so fully in the improvement that has taken place. The market for semi-finished steel is generally characterized as very firm, but sheet bars for first quarter 1925 delivery are being booked freely at \$37, Pittsburgh. Quite a few new units of production and many that were idle are being started up, and it looks as though the steel industry felt certain of still more marked broadening of the demand and is shaping its production policies accordingly.

Many producers seem to see 100 per cent capacity operations not more than two or three months distant, and in quite a few lines this conviction appears to be shared by consumers who are ordering far beyond their current needs because they feel they are saving money on every pound of steel they buy at this time. They are not taking great risks, for, even if they should be disappointed in their expectation that sharp advance will ensue, there is very little likelihood of any marked recession in prices.

If the generally expected rise in the volume of demand fails to materialize, the market simply will weaken, but prevailing quotations would remain in force, although here and there concessions would be offered.

No one looks for an out-and-out setback in the steel industry. What is likely to happen is that the rate of steel consumption will improve gradually, but not at as rapid a pace as some imagine. If, in anticipation of a much greater rush of buyers than will materialize, prices should be advanced prematurely or unduly, intermittent periods of reaction would be certain to level them again.

**Pig Iron.**—Automotive foundries have bought freely of late and are well supplied. The advance that has taken place appears to have been supported by many buyers who believe that when pig iron is at fairly satisfactory price levels, castings also command better prices than when the raw material is being sold at a sacrifice. There is much disparity between the quotations of the various sales agencies.

**Aluminum.**—While some business for 1925 deliveries is in course of negotiation, automotive demand for aluminum appears to be relatively quiet for the time being. The domestic producer is reported to have a very comfortable backlog of contracts. Quotations are unaltered.

**Copper.**—The market has turned quiet, but producers are well pleased with the improvement in the market, and there is no disposition to force prices still higher at this time.

#### STUDEBAKER SALES GAIN

SOUTH BEND, IND., Dec. 10—Studebaker sales in November aggregated 10,907 cars, according to President A. R. Erskine. This is an increase of 33 1/3 per cent over the 8173 in November of last year, which up to now had been the best November in the company's history.

#### FRIEND ORGANIZES COMPANY

NEW YORK, Dec. 10—E. S. Friend has organized the E. S. Friend Co., to finance automobile sales. Headquarters are at 305 Madison Avenue, this city. For the last two years Mr. Friend has been vice-president of the Bonded Securities Corp.

# Calendar

## SHOWS

Jan. 2-10—New York, National Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Bronx Armory. Open to the public except on Jan. 2 and 3 which are trade days.

Jan. 17-24—Cleveland, Annual Automobile Show.

Jan. 23-31—Chicago, National Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Coliseum and First Regiment Armory. Open to the public except on Jan. 23 and 24 which are trade days.

Jan. 25-31—Chicago, Annual Automobile Show.

Feb. 7-14—Kansas City, Mo., Annual Automobile Show.

Feb. 21-28—San Francisco, Pacific Annual Automobile Show.

March 7-14—Boston, Twenty-third Annual Automobile Show.

March 20-29—Geneva, Switzerland, Second Swiss International Motor Exhibition.

April 1-17—Sydney, Australia, Royal Agricultural Show. Embraces automobile exhibits.

April 22-May 7—Melbourne, Australia, International Automobile Show, under the auspices of the Chamber of Automotive Industries, in conjunction with the Royal Automobile Club of Victoria.

June—Rio de Janeiro, Brazil, Rio Automobile Show, originally scheduled for October, 1924, but postponed for more extensive arrangements.

## CONVENTIONS

Jan. 5—New York, Convention under the auspices of the National Automobile Dealers Association, Hotel Commodore.

Jan. 5-9—Chicago, Road Show and Convention of the

American Road Builders Association.

Jan. 26-29—Chicago, Eighth Annual Convention of the National Automobile Dealers Association, Hotel LaSalle.

June 22-27—Summer convention of the Automotive Equipment Association at the Broadmoor Hotel, Colorado Springs, Colo.

## S. A. E. MEETINGS

Dec. 15—Cleveland Section, Development of Clutches, Ernest C. Wemp, Long Manufacturing Co., Old Colony Club, Hotel Cleveland.

Dec. 18—Metropolitan Section, Multiple Wheeled Vehicles, A. W. S. Herington and A. F. Masury, Hotel Empire, New York City.

Jan. 15—Indiana Section, Lubrication and Crank Case Dilution, S. W. Sparrow of the U. S. Bureau of Standards.

Jan. 19—Cleveland Section, Preparation of Fuel Charges and Detonation, Arthur H. Denison, Weger Motor Co., Old Colony Club, Hotel Cleveland.

Jan. 20-23—S. A. E. Annual Meeting, Detroit.

Feb.—Indiana Section, Automobile Finishes.

Feb. 16—Cleveland Section, Electrical Instruments and Measuring of Chassis Tests by Means of Them, J. H. Hunt, General Motors Research Corp., Old Colony Club, Cleveland.

Mar.—Indiana Section Developments in Transmission.

Mar. 16—Cleveland Section, Road and Riding Ability, Harry Horning, Waukesha Motor Co., Old Colony Club, Hotel Cleveland.

Apr. 9—Indiana Section, Talk by F. E. Hunt, head of electrical division, General Motors Research Corp.

## Favor State Highway Commission for Buses

INDIANAPOLIS, Dec. 10—Trucks and buses should be regulated by the State Highway Commission instead of by a public service commission, as generally proposed, according to a resolution adopted at the third annual convention of the Indiana Highway and Motor Association (formerly Allied Motor Commerce of Indiana).

Other stands taken by the association were that the gasoline tax be raised and registration fees be kept at present levels, so that increased money for State highway paving may be given to the State highway department.

A movement by the strong Indiana Municipal League to ask the Legislature to give municipalities the right to tax private passenger cars, as well as commercial vehicles, was given a lefthanded compliment in another resolution which says "the Indiana motor vehicle laws should be so amended that cities may tax all motor vehicles or none at all."

To date cities tax trucks and buses only. Multiple city and community taxes are paid by some commercial haulers who go through several cities.

## Haynes Plant Started on Temporary Schedule

KOKOMO, IND., Dec. 10—Operating under supervision of Robert L. Tudor, trustee, the Haynes Automobile Co. began on a temporary production schedule Dec. 1. The output will be limited to broughams and sedans. The purpose of the run is to use up stocks on hand, which are sufficient for about 200 units.

There is a possibility that arrangements will be made for further production under the trustee, while Earl W. Barnes, attorney for the Haynes company, states that there is in sight a re-

organization plan which will restore the company to a sound financial basis.

It is expected that the plant will operate on the present schedule for the next 60 days.

## Eldridge Breaks World 10-Mile Speed Record

PARIS, Dec. 10—An average speed of 121.42 miles an hour was maintained for the ten-mile flying start in the successful attempt on the world's record for this distance made by E. A. D. Eldridge at the wheel of his 300 hp. six-cylinder Fiat, running on Montlhery track, near this city.

The distance, as electrically timed, was covered in 4 min., 56 49/100 sec., compared with 4 min. 58 86/100, the previous record held by J. P. Thomas on a Leyland at Brooklands. The records for intermediate distances were not broken.

## BURDICK TRUSTEE NAMED

NOBLESVILLE, IND., Dec. 10—At a meeting of creditors of the Burdick Tire and Rubber Co., which has been in receivership for some time, Frank Lower was appointed trustee. Mr. Lower has been acting receiver here under court orders. It is expected the plant will be sold soon under orders from Harry C. Sheridan, referee in bankruptcy for the Federal Court of this district.

## MINERVA EARNS DIVIDENDS

PARIS, Dec. 10—A net profit of 7,602,015 francs on the year's working is shown by the Minerva Automobile Co. of Antwerp, Belgium, thus allowing a dividend of 40 francs on each of the old shares and 20 francs on the new shares, to be paid. Minerva is the largest concern in Belgium exclusively occupied in automobile construction, and is producing cars with sleeve valve engines only.

## \$602,326,389 Spent in Federal Highway Aid

WASHINGTON, Dec. 10—The federal aid highway system, being built under the direction of the United States Bureau of Public Roads, now total 35,156 miles, according to the annual report of Thomas H. MacDonald, chief of the bureau, filed with the Secretary of Agriculture.

The report shows that there are 2,866,061 miles of roads in the United States. Under the act of Nov. 9, 1921, each State was given aid in building up 7 per cent of its road mileage, making the total federal system, when completed, 200,624 miles long. Since the passage of the act, a little more than three years ago, three States have completed their programs.

## Philadelphia Orders 200 Yellow Coach Buses

PHILADELPHIA, Dec. 10—What is probably the largest single order for motor buses ever placed in this country has been given by the Philadelphia Rural Transit Co. to the Yellow Coach Manufacturing Co. of Chicago.

It calls for 200 buses of the Yellow Coach Co.'s 67-passenger double-deck type, but with the clutch and mechanical transmission replaced by an electrical transmission system manufactured by the General Electric Co.

The order was the result of tests on an experimental bus carrying this form of transmission.

## FLINT HAS JUBILEE MODEL

NEW YORK, Dec. 10—The Flint Silver Jubilee Model is now being featured in commemoration of the 25th Anniversary of the automobile industry. The car is the stock Six 40 with a complete winter inclosure and is priced at \$1,075.